A DESCRIPTIVE STUDY OF COMMUNICATION NETWORKS AND RUMOR DIFFUSION ABOARD A NAVY SHIP

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A DESCRIPTIVE STUDY OF COMMUNICATION NETWORKS AND RUMOR DIFFUSION ABOARD A NAVY SHIP

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CHAPTER I

INTRODUCTION

Background

In the United States Navy, as in non-military organizations, public relations may seek to deal with a variety of groups -- groups external to the service, such as the community surrounding a station or potential recruits, and groups within the service, such as the personnel assigned to a shore station or the crew of a ship.

This study was conducted in the area of internal public relations, specifically dealing with the crew of a Navy ship.

Public relations has been defined as "the management function which evaluates public attitudes, identifies the policies and procedures of an individual or an organization with the public interest, and executes a program of action to earn public understanding and acceptance."[1] In studying this definition, there may be recognized the outline by which many commanding officers have sought to manage their crew and their

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[1]Scott M. Cutlip and Allen H. Center, Effective Public Relations (Englewood Cliffs: Prentice-Hall, Inc., 1958), p. 5.

ship. Certainly, most captains attempt to estimate the attitudes of their men, seek to identify their own policies and those of the service with the collective interest of the crew, and to vigorously pursue a program of action which will best lead to their crew's understanding and acceptance of those policies. In the end, each commanding officer hopes that his will be a happy and efficient ship.

There are, of course, obstacles to the attainment of that ultimate goal, obstacles familiar to executives in every field. But one most recurrent is that of faulty or ineffective communications within the organization. Possibl. no circumstance is more frustrating to officers responsible for the management of Navy ships than the sometimes evident reluctance Navymen show toward adherence to formally established channels of communications aboard ship. This is not to say that authority and procedure are ignored. It is, however, to say that the members of the shipboard community can be as unaffected by some communications issued by "the management" as can be the members of any other community or group. Since one of the primary functions of public relations is "to use communication to influence public opinion,"[1] it is apparent that communications weaknesses within

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[1] Ibid.

the ship will only detract from command objectives, from the ideal goals of efficiency and high morale.

Since some ships fail to attain the ideal, and a few fall measurably short of it, there must exist explanation beyond the uniform command desire for "top performance." And this explanation may lie, in large part, in the internal communications practices aboard the ship. Returning to the definition of public relations, it must be noted that there are two parties in the process of communication -- the originator and the audience. On the Navy ship, these parties are the captain and the crew. If we may accept the assumption that every captain wants the best ship possible, and that his communications to the crew are constructed accordingly, we must turn our attention to his audience to determine how it receives and handles communications. In so doing, we will illustrate factors which command should consider in the internal communications effort.

A common indication that command communications have gone askew is the "garbled word," messages that get transposed, sometimes radically, during their journey through the chain of command. However, the condition which seems most symptomatic of inadequate knowledge of, or attention to, command communications is that of rumor. Since rumor is not initiated by command, it must be generated at a lower level, perhaps as the result of some unexplained event or situation, and it may substitute for valid information. In other words, rumor may fill a void left open by lack of command information.

The tendency for shipboard personnel to accept rumor was illustrated (under wartime conditions) by Authors Allport and Postman, who stated:

> Especially in faraway lands, cut off from usual sources of news, rumor was the only source of "information." On a ship, officers on the bridge may have been "in the know," but the common sailor was at the mercy of current scuttlebutt.[1]

How does a rumor begin? How does it travel through the shipboard community? What functions does it fulfill? Does rumor merely serve to fill information voids, or might it just as possibly act to displace command information? What effect upon rumor might an active command policy of "keeping the crew informed" be expected to have?

In dealing with his ship's company, that collection of individuals upon which his success or failure is irrevocably dependent, the commander will more surely approach success if he, first, recognizes the need for effective internal communications and, second, seeks to understand internal communications processes aboard his ship.

As he studies his small community, he will discover that his crew, as any group, has developed an interpersonal communications network separate from the formal network set forth in the ship's organization manual. He will find that, oftentimes,

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[1]Gordon W. Allport and Leo Postman, The Psychology of Rumor (New York: Henry Holt and Co., 1948), p. 31.

his crew gives great credibility to the predictions of close informal associates. Such a phenomenon is consistent with research findings which have shown that individuals tend to accept most readily the opinions of others who are near their own social level. These studies have revealed that those individuals whose opinions enjoy acceptance among their peers are "by and large...like the rank and file of their associates but of slightly higher educational and social status."[1] It would seem then that, in the absence of information, individuals will tend first to acquire opinion from close associates in the community.

In dealing with the shipboard community, the commander must appreciate these interpersonal associations. He must acknowlege the existence of an informal communications network aboard his ship, and he must recognize that it may function in consonance or in disharmony with his efforts in the formal communications channels.

> The objective study of these elementary social nuclei is, therefore, quite basic to an understanding and intelligent control of the community.[2]

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[1]Bernard Berelson and Gary Steiner, Human Behavior (New York: Harcourt, Brace and World, Inc., 1964), p. 550.

[2]George A. Lundberg, Social Research: A Study in Methods of Gathering Data (New York: Longmans, Green and Co., 1948), p. 314.

The community to which we refer in this report is made up of the officers and men of one Navy ship. Of specific interest to this study was the description of the formal and informal communications networks aboard that ship, and the observation of those networks in a rumor situation. Such an analysis is considered significant in the area of internal public relations as a possible index device for the measurement of the effectiveness of command communications aboard ship -- indeed, within any organization.

For purposes of this study, the ship's formal organization was taken to constitute the formal communications network. The informal network was determined by elicitation.

Many interpersonal network studies have been undertaken. Most notable, perhaps, were those of Lazarsfeld et al. (1940 presidential election) and Coleman et al. (study of the diffusion of a new drug in a medical community).[1]

Similarly, certain military leadership studies have been conducted utilizing sociometric measurement techniques.[2]

And no more comprehensive analysis of rumor has appeared than that of Allport and Postman, previously cited.

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[1]Paul Lazarsfeld and Herbert Menzel, "Mass Media and Personal Influence," The Science of Human Communications, ed. Wilbur Schramm (New York: Basic Books, Inc., 1963), pp. 96-102.

[2]Gardnew Lindzey and Edgar Borgatta, "Sociometric Measurement," Handbook of Social Psychology, ed. Gardner Lindzey (Cambridge: Addison-Wesley Publishing Co., Inc., 1954), pp. 424-425. An excellent overview of the development and applications of sociometric techniques.

It is, however, believed that few if any studies of formal and informal networks, and their relative functioning in the diffusion of rumor, have been undertaken in a closed community. Nor is any study believed to have tested the susceptibility of such a community to a rumor whose content is contrary to that of previous formal announcement.

It has been the purpose of this study to do so.

Aims and Organization of the Study

This study was directed toward a description of the formal and informal communications and opinion leadership networks aboard a Navy ship. It further attempted to examine the diffusion of rumor, in the form of a "counter-expectancy" communication, introduced into those networks.

The term "counter-expectancy" is used herein to describe a message (rumor) which carried content highly inconsistent with that of earlier communications which had been issued and confirmed by command and which were commonly understood within the community.

It was the major hypothesis of the study that the counter-expectancy communication, selectively inserted into the informal network, would diffuse through that network in a manner made predictable by previous sociometric measurement of the community.

Additional hypotheses were that:

1. There would be relatively low correlation between the positions of individuals in the formal and informal net-works,

That is, social preference nomination would tend not to correspond with established formal, or organizational, roles.

2. The communication would find more acceptance among the underchosen than among the overchosen individuals.

3. Individuals would tend to believe or disbelieve the rumor on one of three bases:

a) Whether or not it was given credence by their star individual(s).[1]

b) According to their proximity to the ship's formal hierarchy. (For instance: Personnel in isolated specialties, such as boilermen, might tend more to believe the rumor than would personnel in more centrally located specialties, such as yeomen who have access to the ship's correspondence. Officers, who are closest to command, might tend to disbelieve the communication altogether, whereas men most distant from command might prove the most susceptible to the rumor.)

c) In proportion to the degree to which the rumor offered some personal advantage or disadvantage.

4. Personnel in the lower grades would tend to subscribe to the rumor to a greater extent than those in the higher grades.

These hypotheses were subjected to evaluation during the study and will be discussed at appropriate locations in the report.

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[1]An individual who is disproportionately popular among a group. The popularity may be based upon any of a wide variety of social or professional criteria.

The collection of materials for the report has included:

1. A literature search to locate material related to sociometric measurement and techniques thereof, and to the process of rumor, specifically as associated with studies in the general area of this study. It was found that a limited number of volumes, eclectic in design, contained virtually all background materials essential to the study.

2. An examination of the organization of the test ship, which was thoroughly discussed and depicted in the ship's organization manual.

3. The preparation and administration of a sociometric questionnaire to the personnel of the test ship in order to describe, in graphic form, the informal communications/network of the ship.

4. A visit to the ship, during the period 13-18 March 1964, in order to collect data on the diffusion of rumor within that ship.

The remainder of this report will be divided into the following sections:

1. Chapter II. A comparison of the ship's formal and informal interpersonal networks including the presentation of sociometric data.

2. Chapter III. A description and evaluation of the rumor study and data derived therefrom.

3. Chapter IV. Conclusions and recommendations for additional study.

CHAPTER II

COMPARISON OF THE SHIP'S FORMAL AND INFORMAL INTERPERSONAL NETWORKS: SOCIOMETRIC DATA

Formal Organization

> The ship's organization and regulations manual is the directive that governs the administrative organization of the ship, the coordination in general evolutions and emergencies, and the conduct of personnel aboard the ship.[1]

So states the introductory paragraph of the organization manual of the ship utilized in this study. Such is the purpose of the organization manual of all Navy ships. These manuals are, in essence, reflections and developments of all applicable regulations and instructions dealing with shipboard organization and administration which have been issued by the Navy Department and other higher authority. They are, of course, tailored to the particular requirements of the type of ship on which they are issued. As such, the manual may be considered the final and absolute detail of a ship's formal, or task, organization.

In this section, the writer will describe the general philosophy of shipboard organization and sufficient specifics pertaining to the test ship in order to provide suitable comparison between the formal and social networks therein. The ship's

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[1]U. S. Navy, Ship's Organization Manual: USS ( ), Aboard USS ( ), 1 July 1963. (mimeographed.), p. 1.

identity is withheld, a stipulation volunteered by the writer who considered the anonymity of respondents essential to the elicitation of conscientious reply.

A ship's organization. -- The administrative organization of Navy ships is based and planned on the tenet that every organization must have a reason for being, and that personnel of the organization must know that reason. Ships of the Navy are built to be used as national policy demands, and the demand made of them determines the objectives of the personnel within the ships. Peacetime objectives require that active ships be maintained in the highest practicable state of operational readiness.

Every naval officer must ensure the operational readiness of his ship. To be prepared to carry out this duty, he must have a clear understanding of the meaning of administration and of the responsibilities involved.

In the administration of a ship, as of any functional organization, the formal command structure is of ultimate importance. This structure is the "printed circuit" of administration. While the administrator is concerned with overall policies, the formal structure provides the channels through which these policies are made effective. When an officer is assigned a task, he first determines the objectives of that task, then organizes his personnel and material by assigning and coordinating such duties and functions as are necessary to attain those objectives. The

responsibilities of such administration, war or peace, extend from the commanding officer to the most junior petty officer or seaman entrusted with responsibility.

Formal structure, or organization, prescribes the orderly arrangement of personnel by functions. It is based on the division of activities and on the assignment of responsibilities to individuals within the organization.

> To ensure optimum efficiency within the organization, all essential functions must be recognized and delineated as specific responsibilities of appropriate organizational units, and there must be a clear definition of individual duties, responsibilities, and authority.[1]

Navy ships are, normally, divided functionally into five major departments: navigation, operations, gunnery or deck (the former appearing in combatant ships, the latter in auxiliary ships), engineering, and supply. The navigation department is primarily responsible for the safe and timely transit of the ship from point to point. The operations department attends to all operational planning, the management of all tactical information and the ship's external communications. The gunnery, or deck, department is responsible for the care and operation of weapons systems and evolutions of practical seamanship (refueling, replenishing, mooring, etc.). Engineering has cognizance over the operation and maintenance of virtually all mechanical and electrical equipment in the ship, except things electronic. The

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[1]Ibid., p. 2.

supply department is the Navy's equivalent to the Army quartermaster corps; it sees to the feeding of the crew and manages all logistic and monetary functions of the command. Each of the major departments is headed by an officer, called a "department head," who, except in the smallest ships, is assisted by one or more junior officers.

The departments of a ship's administrative organization are further divided into divisions. Divisions are usually composed of personnel of a single professional specialty (for instance, radarmen). Divisions are both functional and administrative in nature, that is, they are conveniently composed for routine and combat functions as well as for the facilitation of personnel management. Each division is headed by a "division officer," normally a junior officer within the parent department, who is supported by a hierarchy of petty officers. The division officer and his primary petty officers are responsible both for the professional development and military deportment of all personnel within the division.

The composition of a typical division might be as follows: a division officer (ensign or lieutenant (junior-grade)), a chief petty officer (who is called the "leading chief" and may act as assistant division officer), a petty officer first class (who may be the principal monitor of military deportment, on a routine basis, within the division), and other petty officers (who are appointed to oversee specific task assignments of either routine or special nature and the subordinate personnel assigned thereto).

To complete the description of the shipboard hierarchy, the division officers are responsible to their department heads. The latter are, in turn, responsible to the executive officer for all administrative matters (although they may go directly to the commanding officer on strictly operational subjects). Heading the administrative and battle organization is, of course, the captain "whose responsibility it is to exercise command control" in all matters within the ship and who, during action, is "to engage the enemy to the best of his ability."[1]

A discussion of the test ship's organization will serve to illustrate the foregoing principles and generalities of shipboard organization and will also provide the basis for comparison between formal and informal networks aboard the ship -- within the closed community.

Formal structure of the test ship. -- In addition to the obvious -- that, at the apex of its organizational structure, the ship had commanding and executive officers -- it should be mentioned that it essentially conformed to the standard administrative prescription. The organization included the five major departments, substituting deck for gunnery since it was of an auxiliary type.

The number of officers assigned during the study was fourteen; the number of enlisted personnel numbered 141. The distribution of enlisted personnel by departments was:

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[1] Ibid., p. 4.

Navigation: eight, of which five were assigned to navigational duties and three to aerography.

Operations: Thirty-three of whom eleven were assigned to communications (radio), ten to electronics repair, and twelve to combat information (radar).

Deck: Twenty, of whom sixteen were assigned to seamanship duties and four to weapons.

Engineering: Forty-three, of whom six were assigned to the operation and maintenance of auxiliary machinery, eleven to operation of boilers for main propulsion, eight to maintenance of electrical equipment, twelve to operation of the main propulsion engines, and six to the maintenance of the ship's hull and piping systems.

Supply: Seventeen, who fulfilled the various duties described in the first section of this chapter.[1]

In addition to those personnel regularly assigned to the five departments, the ship's personnel allowance included eighteen temporary personnel who were serving in the Navy, and aboard the ship, for a six month period. These men, although integrated into the various divisions for task purposes, were treated separately in matters of routine administration. For purposes of the study, they have been considered as a separate group, a treatment which, indeed, sociometric data tends to validate.

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[1]From a roster of personnel assigned to the ship, prepared and dated, on board, 5 March 1964.

One further, although minor, "special case" aboard the ship used in this study is to be found in the nominal existence of a medical department. This department exists primarily in name -- although it would exist in fact in time of hostilities -- and the two personnel assigned are administratively attached to the administrative division. The administrative division, composed of the ship's yeomen, functions directly under and for the executive officer and is not a part of any of the major departments. It, too, is treated separately in the study.

For the purpose of more clearly depicting the formal organizational relationships and responsibilities in the test ship, Figure 2 is included.[1] Figure 1 is inserted to aid in the interpretation of abbreviations appearing in Figure 2 and for those appearing in the sociograms (Appendix B) and other illustrations in the text.

With the understanding of the test ship's formal organizational structure, with which both the downward and upward flow of command communications are intended to conform, we may proceed with a discussion of the informal, or social, network of interpersonal communications.

The Informal Network

The method used for the elicitation of data concerning the informal communications network of the ship was the admin-

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[1]Figure 1 is taken from the ship's organization manual, previously cited, where it appears as Figure 1-1.

LIST OF ABBREVIATIONS

Shipboard departments and divisional abbreviations

Navigation
- N Division (navigation)
- NA Division (aerography)

Operations
- OI Division (radar)
- OC Division (radio)
- OE Division (electronics)

Deck
- 1st Division (seamanship)
- 2nd Division (seamanship)
- 3rd Division (weapons

In the sociograms, all are given the prefix "D" to indicate "Deck"

Engineering
- A Division (auxiliary)

Engineering (cont.)
- B Division (boiler)
- E Division (electrical)
- M Division (machinery)
- R Division (repair)

Supply
- S Division (supply)

Executive
- X Division (clerical)
- H Division (medical)

Temporary
- T Division (various)

Officers
- WR (wardroom)

Specialties (in the order appearing in sociograms)

QM - quartermaster
SM - signalman
AG - aerographer
RD - radarman
RM - radioman
ET - electronics technician
BM - boatswain's mate
GM - gunner's mate
EN - engineman
MM - machinist's mate
BT - boiler tender
EM - electrician's mate
IC - interior communications mate
SF - shipfitter
DC - damage comtrolman
SK - storekeeper
CS - commissary steward
SH - ship's serviceman
SD - steward's mate
DK - disbursing clerk
YN - yeoman
JO - journalist
PN - personnelman
SN - seaman
SA - seaman apprentice
SR - seaman recruit
FN - fireman
FA - fireman apprentice
FR - fireman recruit

Figure 1

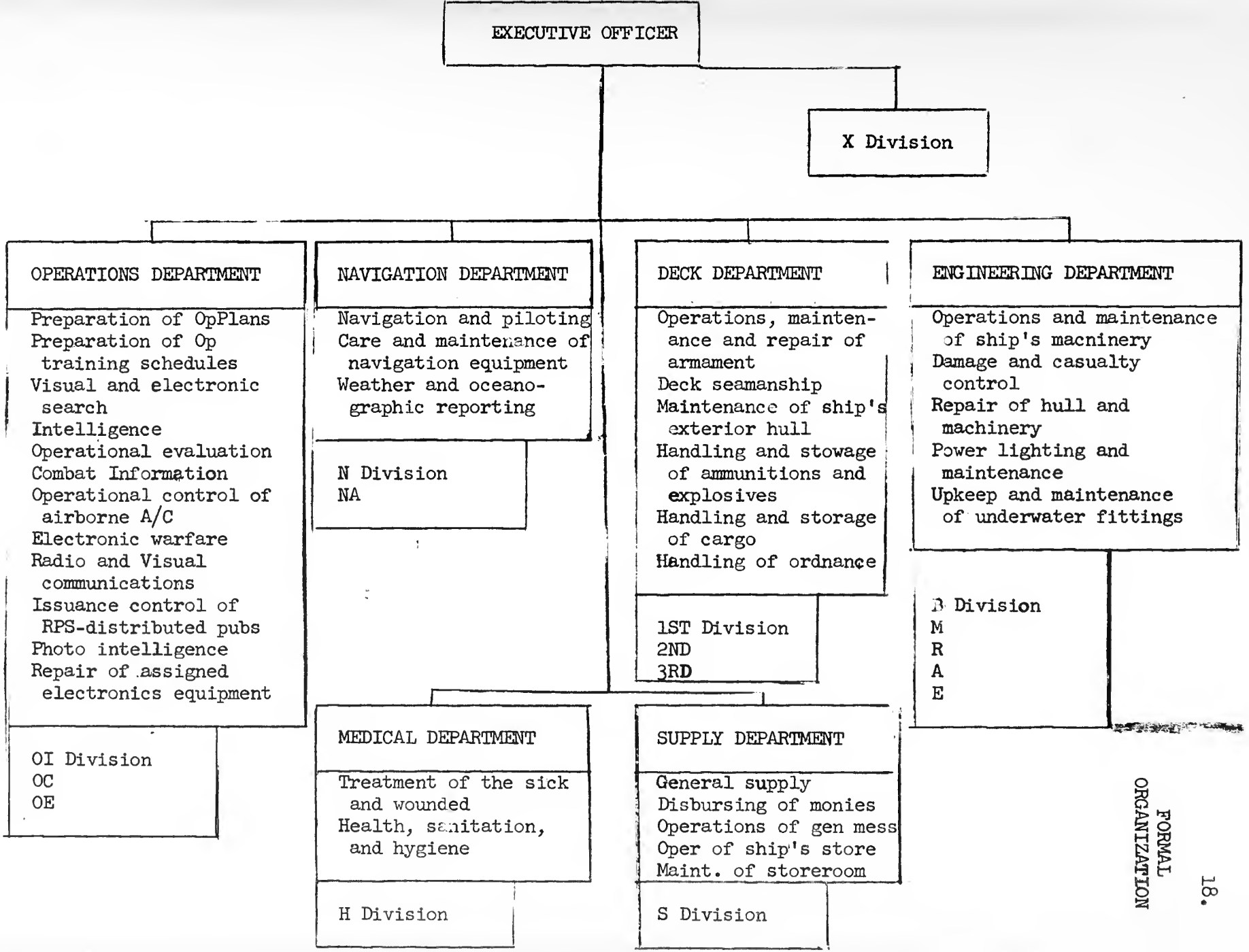

Figure 2.

FORMAL ORGANIZATION

istration of a sociometric questionnair (Appendix I). The writer, by agreement with the commanding officer, and with the assistance of one of the ship's officers, arranged to have the questionnaire administered while the ship was at sea for a period of about 30 days. The questionnaire was vaguely identified as part of a study of more general interest being conducted by Boston University School of Public Communication. It was administered early in the sea period in order to minimize any association between it and the rumor study which was conducted at the end of the period. The writer was present on board the ship during the latter study -- conducted during transit between Norfolk, Virginia, and Davisville, Rhode Island -- but the initial questionnaire was administered by the before-mentioned officer assistant. The assistant was, of course, previously instructed in the method of administration.

The method.--The method used to elicit and depict the social, interpersonal network of the test ship community, sociometry, was drawn largely from the work of J. L. Moreno who in 1934 set forth the technique in a major volume which dealt with the social behavior of the inmates of a women's correction camp. It was among these young women that he developed and applied his new technique.[1] It was, moreover, Moreno's contention that his sociometric method -- the

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[1]J. L. Moreno, Who Shall Survive? (Beacon, N. Y.: Beacon House, Inc., 1953).

elicitation of social attractions and repulsions among all members of a community, and the subsequent application of such data to the ecological rearrangement of the community to provide for individual social preference and, even, personality factors -- could and most urgently should be applied to whole cities, nations, and even the world.

No other measurement device has appeared which can so accurately measure "the web of interpersonal relations, the attractions, repulsions, and indifferences that characterize individuals. ...These instruments are designed specifically to provide a sensitive and objective picture of the interpersonal relations existing within a group."[1]

The administration of the technique is, basically, as follows: The researcher, desiring to assess the attractions, or attractions and repulsions, within a given group elicits from each member of the group a listing of his interpersonal "likes and dislikes". This may be done by interview or through the use of questionnaires. It is, furthermore, conducted on certain criteria of choice and/or rejection -- for instance, the respondent is asked to list the persons with whom he would most, or least, like to live, share meals, go on vacation, enter combat, etc. The respondents may be given either an unlimited

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[1]Lindzey, p. 405.

or specified number of choices; a number commonly used, mostly due to its convenience in quantitative analysis, is three. It is also important, although apparently obvious, that care be taken that the respondents are informed regarding the limits of the group in which they are to exercise their choices. Having obtained the choice/rejection data from the group under study, the researcher may analyze and represent it in one of several ways. A discussion of each will not be presented here since only one, the graphic method, has been employed in this report.[1] The graphic method, or sociogram, was first described in Who Shall Survive? It is a "diagramatic device for summarizing the choices and rejections among members of a group. It employs geometric figures to represent members of the group and various kinds of lines joining the figures to represent choices and rejections. At this point there is no single convention for the drawing of diagrams but, rather, there are many alternatives available to the investigator."[2]

In studying sociograms, several patterns become evident to the reader. Briefly, sociometric types and patterns include:

The overchosen. He is a member of the group who receives a disproportionately large number of choices from other members.

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[1]The other principal methods of analysis are: simple quantitative, statistical, matrix and fractionation of groups. Each is discussed in some detail in the Lindzey and Borgatta article in the Handbook of Social Psychology.

[2]Lindzey, p. 410.

Moreno labeled this individual a "star."

The underchosen. He is a member of the group who receives disproportionately few choices.

The isolate. He is a member who receives no choices. He may, moreover, make no choices.

The mutual pair. This is a pattern of recripocal choice between two members of the group.

The triangle. In this pattern three persons are connected by mutual choice.

The chain. Such a pattern occurs when more than three persons are connected by mutual choices. Such patterns may form a circle of choices.[1]

For the purposes of this study, the above descriptions will serve as definitions of those terms where appearing.

A review of the inventory of research conducted with the utilization of sociometric measurements reveals that the technique has been applied in an impressive variety of educational, industrial, military, medical, and general community settings.[2] Most such studies were primarily devoted to the physical arrangement or rearrangement of individuals within the group in order to achieve social efficiency, or (and there were many such) the attempt to establish the factorial composition of leadership through a correlative analysis of

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[1]Ibid., p. 411.

[2]J. L. Moreno et al., The Sociometry Reader (Glencoe: The Free Press of Glencoe, 1960).

social attractiveness and numerous demographic and personality variables. Many studies of group morale and task effectiveness have likewise been built around analyses of social cohesion and disintegration.

Among the active researchers in sociometry has been D. M. Goodacre who, in a military setting, determined that a high correlation existed between social and combat sociometric choices and eventual performance in battle action.[1] A close collaborator of Moreno's, Helen H. Jennings, in community studies, concluded that "the choice process in a community structures it psychologically in a particularized fashion along the lines of association for work and living together important to its population."[2] In yet another study, the U. S. Army, during the Korean War, experimented with group training and combat replacement. It found that, having established small groups during training through sociometric method and transferring such groups together to combat units, individuals thus entering combat tended to meet the new situation with greater objectivity and a higher morale quotient.[3]

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[1]D. M. Goodacre, The Use of a Sociometric Test as a Predictor of Combat Unit Effectiveness," Sociometry, XIV, No. [illegible] (1951), 148-152.

[2]Helen H. Jennings, "Leadership and Sociometric Choice," Sociometry, X, No. 1 (1947), 32-49.

[3]Department of the Army, "Effect of Morale of Infantry Team Replacement and Individual Replacement Systems," Sociometry, XVIII, No. 4 (1955), 587-597.

Legion, indeed, are the studies in the areas of leadership and morale.

Still, the literature reveals very little in the area of the present study, that is, in the purposeful investigation of a group's social network as it functions in the mechanical transmission of a communication. Its functioning, in some manner, in the process of communication may be assumed, simply because the individual's social personality leads him to interact with others. The writer, however, can find reference to only a few attempts to trace a communication through the social Network of a specified community. Moreno, in Who Shall Survive?, makes fragmentary mention of having conducted a rumor study within the inmates' community. In his experiment he caused a rumor concerning one of the camp's officials to be planted with a star individual within one of the community's five rather distinct social choice subgroups. He reported that the communication had conformed with his prior assumptions in that it traveled quickly through the star's parent subgroup, more slowly to adjacent subgroups with which there was some social contact, and not at all to one subgroup with which there was no social contact shown on the community's social diagram.[1]

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[1]Moreno, Who Shall Survive?, pp. 445-446.

Before presenting the sociogrammatic data of the shipboard community, a brief discussion of its collection and method of display is in order.

The ship's informal network.--As previously stated, the sociometric data for this study was collected at the beginning of the test ship's 30-day at-sea period, elicited by questionnaire -- at two administrations, with the crew equally divided, half present at each -- and conducted by a most competent assistant, the ship's personnel officer, whom the writer had carefully instructed beforehand. Since this assistant, in the course of his job, had regular contact with nearly all members of the crew, and since he evidenced a nice rapport with his shipmates, his availability and his willingness to aid were considered a benefit to the study.

The questionnaire was designed to elicit, through one key question, the purely social preferences of each member of the crew from among his shipmates. The question used was: "List the three men aboard this ship (regardless of rank, rate or rating) with whom you most enjoy spending your time (such as on liberty, in bull sessions, etc.)." It was made clear, both by a statement on the questionnaire and by the careful reassurance of the assistant, that the name of the respondent, and those of all persons named on the questionnaire, would be treated in utmost confidence.

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The questionnaire was administered three weeks prior to the arrival of the ship in Norfolk, Virginia, at which location the raw data was delivered to the writer for initial development prior to the ship's sailing to Davisville, Rhode Island, a two-day transit during which the rumor study was to be conducted.

From this initial development of the sociometric data, the writer determined which individuals in the crew were to be used in the insertion of the communication. Other individuals might as easily have been selected, as the later, complete development of the sociograms illustrated; however, the writer is satisfied that the initial selections were representative of distinct sociometric types and served the study adequately. More of this, however, in Chapter III.

Analysis of data.--A finite description of the sociometric data will not be included in this presentation. Rather, the writer will include only general observations growing out of his study of the data which have primary bearing upon the remainder of the research. Should the reader wish to give more detailed study to the sociograms, they may be found in Appendix B.

The first, and most fundamental, finding from the analysis of sociometric data was that -- as in other studies of the kind -- the social network very seldom coincided with the formal network of the ship's organization. In very few instances did superiors and subordinates, from the direct chain of command, choose each other socially. As Figure 3 serves to illustrate,

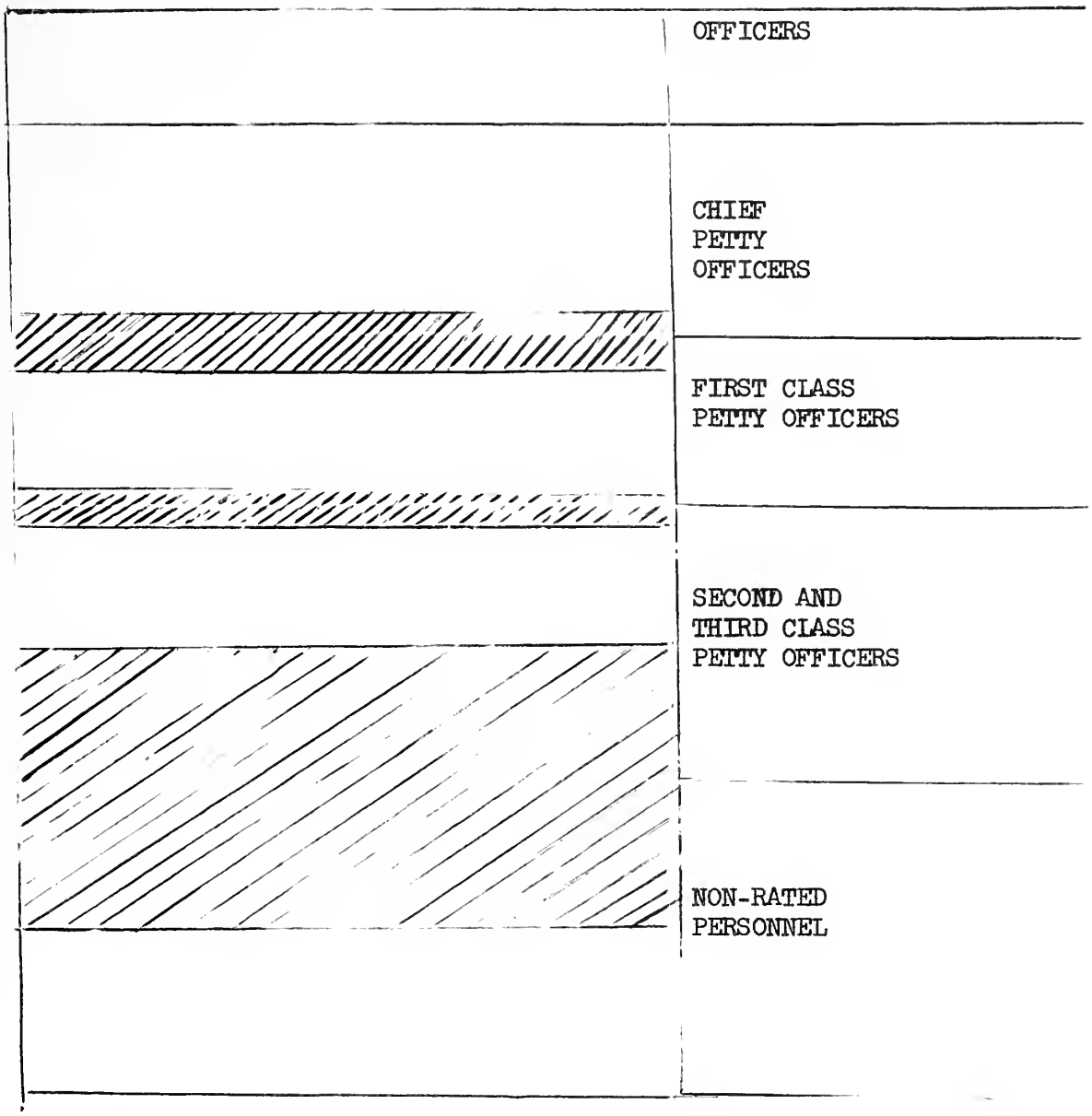

Figure 3.

Social Interaction Between
Rank Stratifications

(Shaded areas indicate approximate extend of social interaction between adjacent rank strata. Interaction between non-adjacent strata was negligible. Rank strata are proportionate in size to the numbers in each stratum aboard the test ship. Drawn from ship's roster and sociometric data tabulations.)

those personnel who are primarily in the supervisory ranks and rates -- officers, chief petty officers and first class petty officers -- interact only to a very limited degree with those above or below them in the formal structure. There may be observed a good bit more social interaction among the second and third class petty officers and the more senior seamen, although, even among these ranks, there is little social attraction between the more senior and experienced and those who are most junior and relatively new to the service.

In proceeding with a general analysis of the social interaction patterns within and between divisions and departments aboard the ship, it was believed that Figures 4 and 5 would be of assistance to the reader. Figure 4 illustrates the primary patterns of social choice both within each department and between departments. It does not account for the relative sizes of the departments, but only for the proportional manner and direction in which they tended to exercise their social choices.[1] Figure 5 presents an approximate spacial diagram of the primary work areas of each of the ship's departments; certain coincidence may be seen between the choice patterns of the departments and the proximity of their work areas, although their various degrees of mobility are not demonstrable in the diagram.

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[1]Shading within departmental circles indicates the relative extent to which members of each department exercised their social choices within their own department. Thickness of

NOTE:

Width of lines connecting circles indicates extent of mutual social choice between departments. Amount of black within each circle indicates extent of intradepartmental choice.

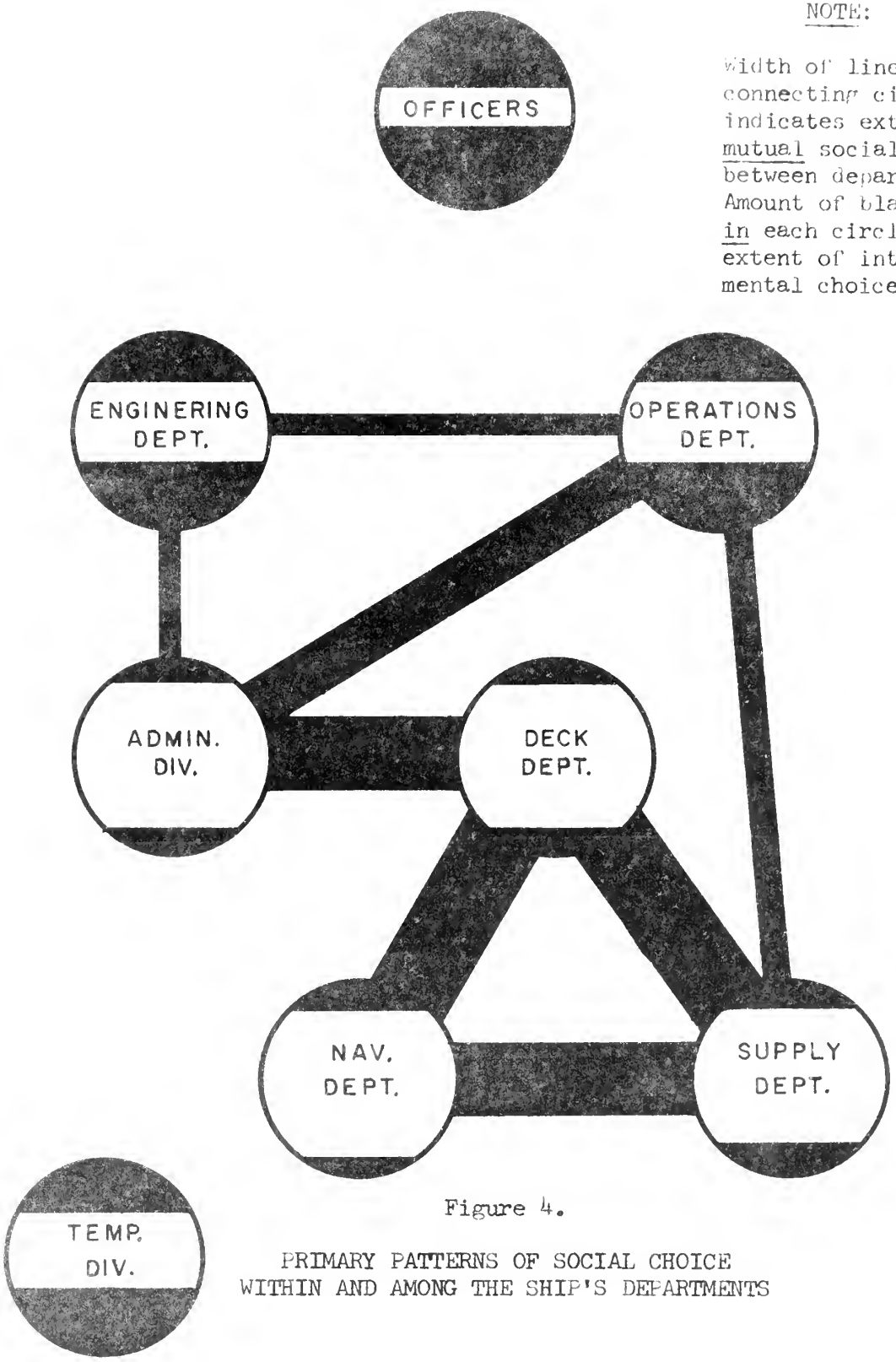

Figure 4.

PRIMARY PATTERNS OF SOCIAL CHOICE
WITHIN AND AMONG THE SHIP'S DEPARTMENTS

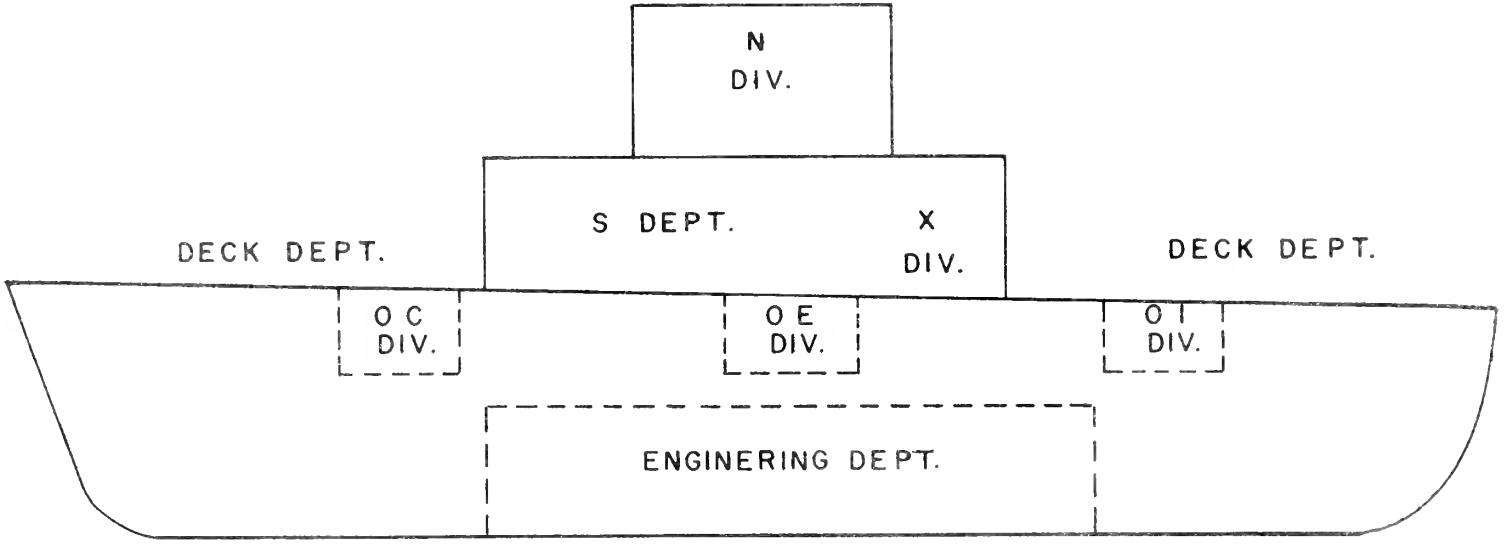

Figure 5.

APPROXIMATE SPACIAL ARRANGEMENT OF
SPECIALTY DEPARTMENTS/DIVISIONS BY PRIMARY WORK AREAS

Generalizations upon departmental choice behavior are as follows:

1. The engineering department is highly ethnocentric in social behavior. Choices were predominantly made either within the division or the department. The principal exceptions to this "rule" were the first class and chief petty officers, an exception consistent with the finding given above -- that of social stratification in the higher grades. It was equally evident from the data that the engineers received as few outside choices as they exercized, and most of these choices originated from members of the underchosen T Division who were task-integrated with the engineers.

2. The deck, supply and navigation departments, and the administrative division, exercised only about 30 per cent of their choices on an intradivisional basis (there may have been an individual ten per cent deviation from this average). Their remaining choices were extradepartmental, reflecting extensive interaction among their members. The relatively high degree of interaction among these departments may be accounted for, at least partially, by their proximal work locations and the mobility of most jobs within them.

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lines connecting the circles indicates the proportionate distribution of each department's extra-departmental social choices. In those instances where interdepartmental choices were non-existent -- or negligible in number and non-mutual -- no connecting line appears.

3. The operations department tends to be separated socially in the same manner that it is spacially. The three divisions of the department (OC, OE, and OI) each have a strong central clique. They are, moreover, as insulated from one another as they are from the other departments of the ship. The factors which may provide this insulation are (1) the exclusive and fixed location of their separate jobs and (2) the relatively high intelligence level which is required for these specialties. Choices exercised outside of the department were usually mutual and in most cases with individuals who were not socially attached to their parent departments.

4. The T. Division -- temporary personnel -- presented a social pattern of nearly complete, involuntary isolation. Although integrated with the crew for task purposes, these individuals directed a higher than average number of their choices to members of their own group. They received only four choices from individuals outside their group.

Some observations resulting from the study of individual choice patterns, of interest to the study, follow:

1. Overchosen individuals tend to exercise and acquire choices either within their own specialty group exclusively or outside their specialty group exclusively. Excellent examples of these overchosen types may be seen in the cases of D8 and X6, and of M3 and M5. (See sociograms, Appendix B.)

2. With one exception, those individuals who refused to exercise social choice in the questionnaire were underchosen or isolated. Half did not receive one choice.

3. The sociograms revealed examples of the triangle and chain relationships, and many of the mutual pair pattern.

In summary, the sociometric data of this study was compatible with that of other studies of similar nature.

This general appraisal of the social network of the test ship will provide a suitable foundation for discussion of the second major part of the study, that of the observation of a rumor introduced into the community. This is the concern of Chapter III.

CHAPTER III

DIFFUSION OF RUMOR IN THE CLOSED COMMUNITY

The Anatomy of Rumor

A children's nursery fable tells that Chicken Licken, having been tapped on the head by a falling walnut, became sufficiently emotionally exercised to report to a friend (Henny Penny, it is told) that the sky was falling. Henny Penny dutifully passed the alarm to Foxey Loxey, who in turn relayed the message to another willing believer, and so on until it came to the ears of the king that the sky was falling -- and with it, no doubt, his kingdom.

On the evening of October 30, 1938, a great many Americans -- perhaps taking a cue from the fabulous Chicken Licken and Company -- became panic-stricken in their attendance to a radio broadcast which presented a fictionalized invasion of Earth by an interplanetary foe from Mars. Even many of those who heard the program announced as "entertainment" became victims of their terrified imaginations. Such a widespread dissertion of rationality was attributed by several social scientists to the almost universal anxieties among the population growing out of concern over the fluid and dangerous

world situation of that time.[1] If world war were possible, why not something even more horrible?

Both Chicken Licken and those who accepted the Martian invasion as fact found in their chosen fantasies some suitable explanation for the disquieting world around them. They had temporarily achieved relief, of a sort, in their "effort after meaning."

This effort after meaning, as Allport and Postman have labeled it, is one of the prime motives in the transmission of rumor. It is the process by which individuals seek to extract meaning from their environments and thereby, to relieve the pressure of particular emotions.[2]

Rumors, of whatever variety -- whether motivated by basic feelings of hostility, fear, wishfullness or, simply, casual curiosity -- must, in order to enjoy extensive transmission, contain a portion of each of two essential ingredients. They must first possess subject matter of importance to both the speaker and the listener; they must, secondly, present the "facts" in a shroud of ambiguity. Ambiguity may result from the absence or shortage of factual evidence, from the distrust of the news, from conflicting reports, or from some

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[1]Hadley Cantril, "The Invasion from Mars," The Process and Effects of Mass Communication, ed. Wilbur Schramm (Urbana: University of Illinois Press, 1955), pp. 411-423.

[2]Allport, p. 37.

emotional tension which may make the individual unable or unwilling to accept fact as it is set forth.[1] Importance means, simply, that the subject matter of the rumor must have some meaning and potential effect in the lives of the participants.

In compiling their volume on the nature of rumor, Allport and Postman have set forth a formula with which the intensity of rumor may be analyzed. The formula reads:

$$R=i \times a$$

The transmission of rumor may thus be measured quantitatively, say the authors, not as the sum of its ingredients but as their product.[2] Thus, if either factor is zero, there will be no rumor; whereas, if the importance factor is calamitous in character, and explanatory information is highly ambiguous, the rumor my support panic, and diffusion may be instantaneous. Between the extremes of no-rumor and hysteria are, of course, myriad shades and degrees of intensity in the formula.

In addition to rumor content, there is another factor in rumor circulation which has direct implications in this, and any, study dealing with the transmission of such communications. That is the factor of individual personality. In studies of individual susceptibility, or persuasibility, to

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[1] Ibid., p. 33. [2] Ibid., pp. 33-34.

influence, it has been found that some individuals evidence greater resistance to the influence of events and other individuals than do others. In conducting an experimental investigation into the personality factors which make different individuals more or less susceptible to persuasion and rumor, R. R. Blake and J. S. Mouten found that:

> The more susceptible are more likely to be submissive, low in self-confidence, less intelligent, less original, show less nervous tension, score higher on the authoritarian scales...show greater dependence on the perceptual field, and comply with requests more frequently.[1]

In another experiment it was found that, among those who evidenced high susceptibility, there existed a "subjective feeling of personal inadequacy in connection with everyday interpersonal relations."[2]

It is apparent, then, that there must not only exist the conditions and material for rumor, but also the individuals susceptible to, and gratified by, its transmission.

One final factor, primary in the diffusion of rumor, is the requirement that individuals who are disposed to act in the communication be located in some network through which the message may circulate.

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[1]R. R. Blake and J. S. Mouton, "The Experimental Investigation of Interpersonal Influence," The Manipulation of Human Behavior, eds. A. D. Biderman and H. Zimmer (New York: Wiley, 1961), p. 259.

[2]C. I. Hovland, I. L. Janus and H. H. Kelley, Communication and Persuasion, (New Haven: Yale University Press, 1953), p. 187.

> Susceptible individuals must be in touch with each other (in order for rumor) to circulate. Such closely knit groups as shipmates at sea -- or the inhabitants of a small town all possess the requisite homogeneity and contact. Among them rumors fly fast.[1]

As the rumor spreads through the human network, it undergoes changes in form and content. A brief discussion of this evolution, called the "embedding process" by Allport and Postman,[2] rounds out the exploration of rumor theory.

The embedding process is essentially the manner in which individuals in the rumor chain "personalize" the communication to suit their own needs and perceptions. For the sake of analysis, this process has been divided into three observable phenomena, all of which, in actuality, occur in concert. The three steps in the process, with their definitions, are:

Leveling--the tendency for the rumor, as it travels, to become shorter, more concise, more easily grasped and told.

Sharpening--the selective perception, retention, and reporting of a limited number of details from a larger context. In sharpening, the individual's tendency is to retain and emphasize unusual words, unique activities or labels, familiar symbols, numbers, size, etc.

Assimilation--the tendency, through transposition or other falsification, to make the rumor whole and satisfying to the individual. Through his employment of pre-existing

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[1]Allport, p. 182. [2]Ibid., 75-149.

knowledge, stereotypes, and expectancies, the individual is able to embellish the rumor in order to satisfy any of a variety of self interests.

Such, then, are the ingredients, the mechanics, and the evolutionary process of rumor. In the balance of this chapter will be discussed the experiment in rumor as it was conducted aboard the test ship, including its behavior in the formal and informal communications networks and the extent to which it conformed to the theoretical requirements of rumor as set forth in this section of the chapter.

The Rumor Experiment

Collection of Data.--Data for the rumor study was collected aboard the test ship during a two-day period at sea, 16-18 March 1964.

The writer, having worked with sociometric data prior to sailing, in order to determine with which individuals to initiate the rumor, boarded the ship 16 March and posed as an officer attached to the Charleston, South Carolina, Naval Shipyard. It was intended in assuming this identity, that the writer's presence be compatible with the rumor subject rather than an extraneous distraction.

In earlier discussions with the ship's commanding officer, it was decided that the subject of the rumor would deal with the ship's overhaul schedule. The ship had been officially

scheduled, since 1 January 1964, to undergo overhaul in Boston during June through August 1964. At the time of these discussions with the commanding officer, it was decided that the rumor to be introduced would be a counter-expectancy communication to the effect that the ship's overhaul schedule was to be changed, and that it would take place "in Charleston or someplace down south."

Since the home port of the test ship is Davisville, Rhode Island, and since a Charleston overhaul would result in extensive personal inconvenience and lengthy family separations, the topic was considered to be one of considerable potential importance to the crew. It was further believed that some, mostly among the unmarried or among those whose homes and families were located in the South, would find the prospect of such a schedule change attractive.

The requirement for ambiguity was considered to be adequately satisfied by the introduction of doubt and confusion as to the location of the ship during the period of the overhaul.

Having determined the rumor content, it was next decided to attempt its introduction into the network on an "accidental" basis, specifically by arranging that it be overheard by the selected carriers as a piece of conversation between the writer and his officer assistant. Should the

accidental method fail, the writer planned to enlist the assistance of another selected individual from the crew to act in the deliberate insertion of the rumor.

A chronological listing of events in the introduction of the rumor and the collection of data will, perhaps, serve best to inform the reader of the procedure and time frame of the study.

1. The writer boarded the ship one hour prior to sailing, giving the assumed identity previously mentioned.

2. The ship sailed at 3 p.m., 16 March.

3. At 5:30 p.m., 16 March, the accidental introduction of the rumor was conducted. The men pre-selected to overhear the conversation between the writer and his assistant, and to act as carriers in the spread of the rumor, were a second class petty officer in the engineering department (a highly overchosen individual within the engineering department (designated M5 on the sociogram) and a seaman apprentice in the T division (an involuntary isolate who received not a single choice from his shipmates -- designated T12 on the sociogram). These men were called to the office of my assistant, the ship's personnel officer, on the pretext of checking items in their service records. As he was interviewing them, the writer interrupted, asking for blueprints of the ship's main engines which the assistant said he would obtain. As the writer turned to leave the office, the assistant asked if the writer's

presence aboard the ship meant that "the ship's overhaul is being changed? To Charleston or somewhere down south?" The writer replied that he was "not at liberty to say. Such a decision would be made by people farther up than you and me." After the writer departed the office, the second class petty officer evidenced curiosity about the conversation, but the assistant provided him no additional clarification. The seaman apprentice said nothing but was attentive throughout. Both men appeared to have overheard the discussion.

4. At 9:30 a.m., 17 March, sixteen hours after the rumor had been planted, no evidence of its circulation had reached the ears of either the officer assistant or the commanding officer, both of whom believed that they would have heard something had the rumor become widely circulated. Since the questionnaire had to be administered during the afternoon of 17 March, due to the ship's operations schedule, the writer decided to attempt a deliberate introduction of the rumor through the use of an additional carrier. The man chosen to assist was a seaman in the deck department who worked as the departmental yeoman and as coeditor of the ship's newspaper. He was an overchosen individual who had mutual choices with other overchosen individuals in the operations department and the administrative division. He had no direct interaction with his own department. (His designation on the sociogram is D8.) He was instructed to tell from two to four persons -- persons whom

he would normally go to if he had exclusive information -- that he heard "the ship's overhaul has been changed to Charleston."

5. By 3 p.m., 17 March, there was no evidence of a widespread discussion of the rumor, although the deliberate carrier stated it was being discussed "below." It was, nonetheless decided to administer the questionnaire, even though to do so might "freeze" the rumor before it had developed sufficiently for meaningful analysis. Time, moreover, dictated that the study be brought to a conclusion.

6. The questionnaire was administered to the crew in two sessions between 3:30 and 4:00 p.m., 17 March. Since the impact of the writer's presence aboard ship was still an unknown factor, it was decided that the officer assistant administer the questionnaire. In a further effort to make a final judgment upon what, if any, effect the writer's presence had had on the development of the rumor, a verbal, write-in question was added to the end of the questionnaire asking: "What, in your opinion, has been the mission of the lieutenant commander who is riding the ship from Norfolk to Davisville?"

7. Following the administration of the questionnaire, the writer reviewed the responses and conducted informal interviews with several officers and certain key enlisted personnel whose responses made additional information desirable.

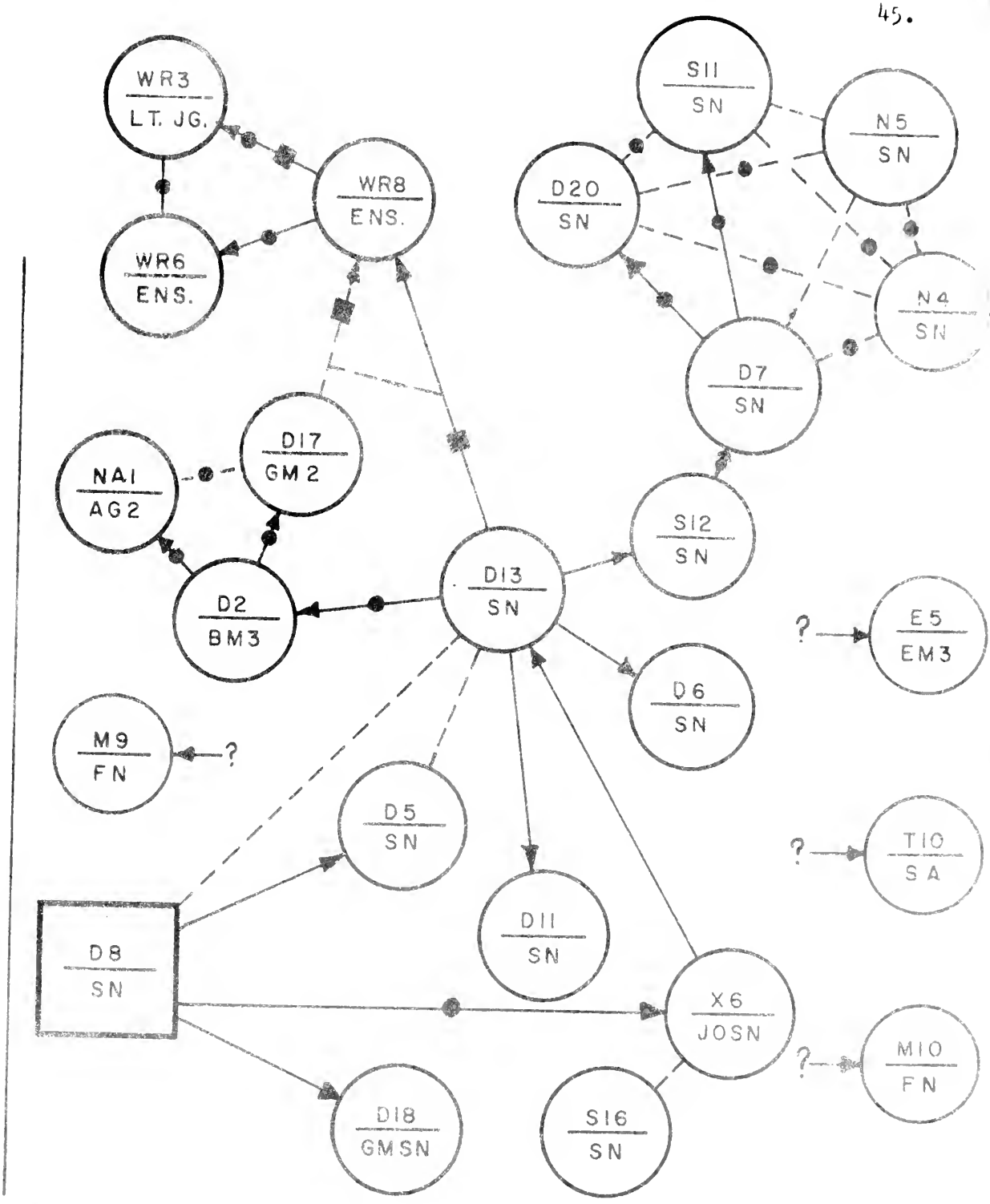
8. The ship docked in Rhode Island early 18 March, and the writer returned to Boston. He subsequently obtained

a small amount of additional information by correspondence, in order to fill any remaining gaps in the rumor study.

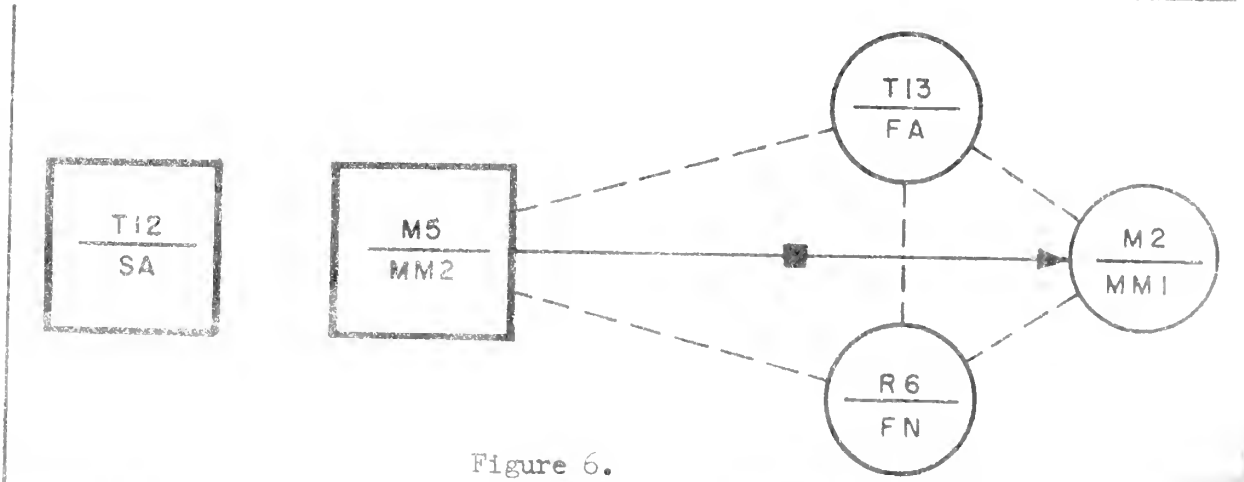
The questionnaire which was administered to collect rumor data (Appendix C) was designed to determine (1) if the respondent had heard the rumor, (2) from whom he had first heard the rumor, (3) the content of the rumor as he had first heard it, (4) the names of the three shipmates with whom he had most discussed the rumor, (5) his opinion as to where the ship's overhaul would now take place, and (6) whether or not any prospective change in the overhaul met with his pleasure or displeasure.

From this discussion of the manner and instruments of data collection, there follows an analysis of the circulation of the rumor (and, in some cases of the failure of the rumor to circulate) and an attempt to locate the individual and network factors which may have tended either to encourage or frustrate the diffusion process.

Analysis of data.--A review of the data first reveals that only 26 of the 155 individuals aboard the test ship had heard the rumor regarding a prospective change in the ship's overhaul schedule. (This figure does not include the three men used as carriers; it includes only those removed from direct contact with the writer.) Of this number, three were officers, nine were from the deck department, five from the engineering department, three from navigation, three from supply, one from the administrative division and two from the division composed



10:00 A.M. - 3:30 P.M. 17 March



3:30 P.M. 16 March -
10:00 A.M. 17 March

Figure 6.

of temporary personnel. No one in the operations department heard the rumor.

In analyzing the reconstructed flow of the rumor, the reader is referred to Figure 6. The diagram is divided into two sections, the lower portion representing the rumor's progress during the period 5:30 p.m., 16 March, until 10:00 a.m., 17 March, and the upper portion representing the period 10:00 a.m. to 3:30 p.m., 17 March. Symbolization used in the diagram is as follows: The three initial carriers of the rumor are represented by squares. Other individuals who heard the rumor are shown as circles. All are identified by the same coding as in the sociograms. The active transmission of the rumor from one individual to another is indicated by a solid line terminating in an arrowhead to show the direction of flow. In instances wherein discussion of the rumor took place, but no evidence of initial source was recorded, such discussion is indicated by a broken line between, or among, the participants. In all instances wherein the transmission or the discussion of the rumor took place between individuals who had previously exercised social choice between one another, a solid dot is placed along the line of transmission/discussion. In cases where transmission of the rumor coincides with the formal organization structure, the "chain of command," a solid square is placed along the line. Four respondents could not remember from whom they had initially heard the rumor; nor did their questionnaires indicate

that they had discussed the rumor with anyone. They are shown on the diagram with a truncated line of transmission joining their circles, indicating that the source of rumor was unknown.

In drawing inferences from the rumor flow diagram, the writer is dealing with only a small sample of the shipboard community. It is to be hoped that that sample, which for the major part is random, has yielded behavioral data which might be largely representative of that of the whole community. This discussion, however, deals only with those members of the crew who participated, in some way, in the circulation of the rumor.

The first concern of this study was to determine to what extent the rumor, when introduced into the ship's internal networks, would conform to the informal network and in what manner might it conform with the formal network. The flow diagram provides some answer to this. In the lower portion of the diagram, we see that T12 did not relay the message to any other person. It is further shown that M5 relayed his new intelligence only to his immediate superior--to none of his social choices--and that his superior failed to retransmit the rumor. Since the latter discussion took place on watch, with only the four persons shown being present, it would appear that the superior actively refuted the rumor content.

In the upper portion of the flow diagram, it is obvious that the rumor received more attention. The carrier informed three persons of the "overhaul change," only one of which was

a social choice, X6. X6, in turn, informed one individual, D13. It was the latter who -- in the brief time remaining before the administration of the questionnaire -- made the most of the subject. He informed five persons and joined three circles of discussion; it is possible that it was he who informed one or more of those whose source was unknown. It is, finally, in the discussion, the group "evaluation," of the rumor's content that the social cliques appear significantly. Three such constellations appear on the flow diagram, each of which conforms precisely to the sociometric groupings of the participants. As for the formal network, it would appear that, after exhausting discussion of the rumor among peers and social groups -- and, perhaps, after becoming agitated over the rumor content -- individuals seek verification or refutation of the rumor from someone in authority. Indeed, such was done by the vociferous D13 and by D17, both of whom went to their division officer, WR8. WR8, in turn, went to his superior, WR3, who was coincidentally a social choice.

In summary, while the evidence is limited, there seems, in this diagram of rumor flow, to be significant support for Moreno's contention that "the resulting (sociometric) network of relationships predicts the channel in which all forms of interpersonal communication, including rumor, are likely to

travel."[1] In the circulation of the test rumor there may be observed significant compatibility with the patterns of social preference apparent in the inter-departmental, vertical (rank), and spacial analyses which were presented in Chapter II. To elaborate on the last statement, the social interaction among the deck, supply, navigation, and administrative departments is again represented in the flow diagram; whereas, since the rumor was established external to them, the engineering and operations departments are virtually excluded. In the vertical travel of the rumor, the isolation of the first class and chief petty officers is reaffirmed; even in the ultimate resort to authority for clarification of the rumor, these individuals were bypassed. And in the spacial aspect of the rumor's diffusion it is evident that those divisions of mobile specialty -- those whose work encourages their freer movement about the ship -- were those most readily exposed to the message. The writer, on the basis of his data, would qualify Moreno's generalization only to this extent: that the sociometric data permits the prediction of social cliques in which information will be evaluated and in which opinions may form, but that the initial transmission of rumor may follow channels of convenience rather than those made socially exclusive through choice. The degree to which

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[1]Allport, p. 182.

information follows the social network may, moreover, be related to its intimate, as opposed to its universal, content and appeal. The rumor used in this study possessed content more universal than personal, or private, in implication.

Next in the analysis of the test rumor is a discussion of behavioral data collected during the study. While the data is too small in quantity to permit statistical testing -- and too limited to allow generalization -- an effort has been made to relate the observed patterns of rumor belief (and disbelief) to pertinent theory, to certain demographic variables, and to individual attitudes accompanying patterns of belief and demography. Observations drawn from the data will be presented in a numerical sequence, not necessarily in their order of importance.

1. Belief and personal advantage. -- There is significant support, from this study, for Allport's contention that the assimilation of rumor "usually conforms to self interest."[1] A cross-tabulation of all participants indicated that all except three either accepted or rejected the rumor on a basis which appeared, from demographic information, to be to their personal advantage. Of the eleven who indicated indifference to the rumor content, seven were scheduled to be detached from the ship

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[1] Ibid., p. 108.

prior to the overhaul. On the basis of the Allport statement, their disinterest would be anticipated.[1]

2. Belief and rank.--Among those who subscribed to the rumor, none were above the rate of second class petty officer; five were seamen. This evidence would tend to support the writer's hypothesis that the rumor would find greater acceptance in the lower grades than in the more senior.

3. Belief and sociometric choice.--Half of those who believed the rumor were overchosen individuals. Nearly half of the total participants were overchosen. None were total isolates. This evidence tends to support the theory that opinion leaders in a communication network tend to be those who acquire information.

4. Belief and attitude.--Among the participants in the rumor's circulation there appeared an inverse relationship between belief and attitude. Those who believed the rumor were predominantly unhappy, while those who did not believe the rumor were predominantly happy. Only four were indifferent. In seeking to determine possible reasons for the relationship between belief/disbelief of the rumor and attitude, correlations were attempted between those factors and (1) marital status and (2) location of home and loved ones. Geographical boundaries

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[1]These individuals were not considered in the analysis of behavioral data beyond the mention just made of them.

for home were northeastern states, southern states, and western states. Only those in the northeast are within "commuting" distance of Boston. In examining the relationship between marital status and geography and belief/attitude, positive correlation was evident in all cases, that is, there was a positive relationship between (1) being an unhappy believer and having home and loved ones in the Northeast, and (2) being a happy disbeliever with home and loved ones in the Northeast.

5. Rumormongering.--Among the seven individuals who evidentally sought out at least one other person to whom to relay the message, the following data was observed: Four of the seven were overchosen individuals. All but one were below the first class level. The division of rumormongers was proportionate to the numerical distributions of believers and disbelievers, of married and single individuals, of happy and unhappy persons, and of those representing the three geographical divisions of the country. In analyzing the sociometric ranking of the rumormongers it would appear that the overchosen—in their roles as opinion leaders -- exercised that requirement of their role which calls for the dispersal of information. It would further appear that, in several instances -- among both the overchosen and underchosen rumormongers -- there was an effort to gain favor, to "seek self-importance,"[1] by carrying

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[1]Allport, p. 46.

the rumor to their clique or to their superior. Such, indeed, would appear to have been the case with the very active, and underchosen, D13.

Finally, in the analysis of the test rumor, follows a discussion of evidence indicating that the embedding process occurred during the rumor's circulation. Unfortunately, there is little data upon which to base the observations. Some, however, appears to exist.

1. Leveling.--In both the accidental and the deliberate introductions, considerable information was initially given. In each case the initial statement was: "I overheard one of the officers and this lieutenant commander, who is from Charleston, talking about the overhaul. He asked this officer if the overhaul was going to be down south, in Charleston or someplace. And the officer said that he wasn't at liberty to say." In the case of the accidental carrier, who reported the information only to his immediate senior, the rumor was carried almost intact, except Charleston was given as the definite location in favor of the phrase "down South." In the case of the deliberate carrier -- whose efforts brought about the principal share of the rumor's diffusion -- the agent himself leveled the rumor prior to its initial transmission. His transmissions said: "I just heard the word that our yard period has been changed to Charleston." All subsequent retellings of the rumor were of approximately this same length.

2. Sharpening.--The only consistent evidence of sharpening during the rumor's circulation was that the words "overhaul" and "Charleston" were present in each transmission of the rumor. The phrases "might go" to Charleston, "change in schedule," and overhaul "has been changed," occurred with about equal frequency.

3. Assimilation.--No consistent pattern in story-telling developed in circulation. Individual efforts to give meaning and wholeness to the rumor were, however, noted. As an embellishment to his story, the first (accidental) agent attempted to explain the possible schedule change by conjecturing that "we may have to go to Charleston because we need engine parts they have there." While such a theory owns no validity, it served as a transparently legitimate explanation for the schedule change for the agent and his audience, since the ship's engines were the objects of their mutual, professional concern. Since the agent's rumor did not travel beyond his first discussion, it would seem that his "explanation" met with no favor. One other verbal evidence of "closure" appeared in the rumor circulation -- that of attempting to attribute the information to a definite source; two individuals, in their telling of the story, said that it had originated with the "X.O." (the ship's executive officer). Such assignment to source might result from either the individual's effort after meaning -- his attempt to lend the rumor wholeness -- or his wish to increase the story's

prestige by ascribing it to a credible source. Creating such an association might also result from the teller's efforts after greater self-importance.

In final summary of the rumor study data analysis, observable evidence has indicated that:

1. The community's informal communications network is highly functional in the diffusion of rumor while the formal network may serve primarily as an inhibiter of rumor-type communications.

2. The phenomena of selective perception, retention and reporting -- as conditioned by the individual's predispositions -- are operative in the rumor situation, and are reflected in the resultant correlations between belief/disbelief and individual attitudes toward the rumor subject. Wording this behavioral phenomenon in another way, Festinger ascribes the exercise of selective perception, or misperception, to the individual's effort to "avoid an increase in dissonance."[1] Expressed in either manner, the ultimate result is that the individual tends to believe or disbelieve communications on the basis of self interest and to the end that inner conflict is not created.

3. The embedding process is a valid description of the manner in which a series of individuals modify a communication in order to facilitate its retention, delineate its important content, and lend it meaningfulness.

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[1]Berelson, p. 537.

CHAPTER IV

CONCLUSION

In concluding this study, the writer will not restate in detail his findings from each contributing analysis; such was done in the closing sections of Chapters II (sociometric data) and III (rumor data). He will, however, review the hypotheses which have suggested themselves during the study. He will then return to a discussion of the counter-expectancy communication in rumor and the manner in which this important characteristic of the test rumor may have affected its circulation. He will close the report with recommendations for further study.

The hypotheses.--Each of the originally suggested hypotheses will be restated with the writer's estimate of its acceptability.

1. Evidence makes acceptable the hypothesis that the counter-expectancy communication would diffuse through the informal network in a manner made predictable by previous sociometric measurement. Acceptability, however, must be qualified due to the limited number of actual participants in rumor circulation and the minor extent of circulation.

2. The hypothesis that there would be low correlation between the positions of individuals in the formal and informal networks is accepted. Social nomination seldom corresponded with organizational relationships.

3. The hypothesis that the rumor would find more subscribers among the underchosen than among the overchosen is rejected. Numerically, the reverse occurred.

4. The hypothesis that individuals would tend to believe or disbelieve the rumor according to the behavior of their star individuals was not evaluated due to the absence of sufficient data.

5. The hypothesis that individuals would tend to believe or disbelieve the rumor according to their proximity to command is tentatively accepted. All those who believed the rumor were below the rate of first class petty officer.

6. The hypothesis that individuals would tend to believe or disbelieve the rumor on the basis of self interest is accepted.

7. The hypothesis that those in the lower grades would tend to subscribe to the rumor to a greater extent than those in the higher grades is tentatively accepted.

Additional hypotheses which suggested themselves during the course of the study were:

1. That a counter-expectancy communication will have a significantly more restricted circulation within a closed

community than will a communication whose subject is one about which the community is not informed, even when the communications are of equal importance to the members of the community and when they are introduced under conditions of equal ambiguity. (The testing of such a hypothesis would, of course, be a matter of far greater complexity than that of the present study.)

2. That professional mobility is positively related to the degree of social interaction between and among sub-groups in the community. (This hypothesis is considered to have been tentatively demonstrated in the present study.)

3. That impermanent members of a community, even though integrated with regular members of the community in task assignments, will tend to be socially rejected by the regular members. (This hypothesis is considered to have been conclusively demonstrated in the case of the six-month temporary personnel assigned to the ship.)

The counter-expectancy communication.--In analyzing rumor data in the course of the report, the counter-expectancy characteristic of the rumor has been disregarded. It would be well, at this point, to consider its possible influence on the study. Unfortunately, since the design of the study did not permit the testing of the first suggested hypothesis, above, this discussion can, at best, be labeled conjecture.

First of all, the writer, from shipboard experience, can state that rumor exists even on the best-governed ship. He can

further state that the subjects of destination, deployment, and, specifically, the location at which the ship is to undergo overhaul, are among the most frequent in rumor. Obviously, the location -- for extended periods of time -- of one's highly mobile place of employment is a subject about which all but the most indifferent feel personal concern. To feed this concern with the introduction of more than one possible resolution is to complete the formula for rumor. And rumor will persist almost until the ship has physically got to the predicted place.

To offset shipboard rumor about scheduled movements the commanding officer can but see to the "circulation of objective information that is not tied explicitly to the rumor itself."[1] This is the commonly followed procedure.

The writer, however, in reviewing his own experience with shipboard rumors, believed that the circulation of the test rumor was inconsistent with its importance, that is, its diffusion seemed unnaturally restricted. Surely, sufficient time was allowed for a subject of such universal importance to have reached the ears of virtually everyone in the ship.

Since importance of content seemed unquestionable, the writer turned his attention to the ambiguity of content. Here, it now seems, lies the only suitable explanation of the test

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[1]Berelson, p. 531.

rumor's limited "success." Certainly, there was sufficient potential ambiguity, but something in the makeup of the community basically prevented its taking hold.

After conducting numerous interviews with junior officers and key enlisted personnel, two things seem implicit in their remarks and from the results of the study:

1. There appears to be a general rapport between the leadership and followership of the command. Remarks to the effect that, should there be any truth in the rumor, "it will come from the captain or the exec soon enough," were frequent.

2. Behind the rapport, or trust in command, must lie something more than habit. Further investigation revealed that, behind the trust, something more did exist. Of major importance would seem the active and consistent program of information and education pursued by the commanding officer. The captain meticulously informs the crew of all matters, which affect their personal planning, as they arise. The ship, even though its deployments are not global in scope, produces a daily newspaper and operates an internal news-and-music radio station. In both of these media, official as well as social news is produced. Both media also present intelligent interviews with the ship's officers and enlisted personnel and with visitors aboard the ship (the writer was hard put to avoid such an interview during his visit).

In short, then, this study may well have served primarily to illustrate the effectiveness of a firm and positive command

policy in the combating of rumor. For it must be remembered that the rumor, dealing with a subject of general importance, reached only 26 people in 22 hours -- a period when the ship was at sea with all hands and during which all hands passed through the mess hall, in potential contact, three times. It should also be noted that the principal rumormonger -- our talkative friend, D13, again -- stated in an interview that "I'm from Atlanta and I would like to put a couple of months in a southern port. I get tired of coming into Davisville all the time!" He was trying so to believe it! And to get some support. But he did not gain substantial support and finally recorded that, unhappily, he did not believe the rumor.

Such, in the writer's opinion, was the effect of the highly information-oriented environment upon the test rumor.

Recommendations for further study.--The writer would suggest that further studies of this nature be designed in such a manner as to test the first suggested hypothesis, above. Since the exact matching of two shipboard communities would be most unlikely -- even using only broad, demographic variables -- it is believed that the same ship might be used to conduct two simultaneous rumor studies, one of a counter-expectancy nature and the other dealing with a subject upon which the crew is not informed. It would be important, of course, to choose subjects sufficiently dissimilar to prevent their intertransposition.

And it would be equally important to select two subjects of equal importance to members of the community, and to thereby insure that the factor of ambiguity should be the only test variable.

Such a dual study, properly conducted, might well serve to test the hypothesis -- only developed by inference in the present study -- that, aboard the ship where the quick and continuous flow of information is a practice as well as a policy, rumor can gain no destructive entrance.

APPENDIX A

Sociometric Questionnaire

BOSTON UNIVERSITY
SPRC
SOCIAL RESEARCH QUESTIONNAIRE

1. NAME_____

2. RANK/RATE_____ DIVISION_____

3. PRIMARY BILLET (Such as: department head, division officer, leading chief, leading P.O. If not applicable, enter NA)

4. LIST, IN ORDER OF CHOICE, THE THREE EAST COAST PORTS YOU LIKE THE BEST:

a._____
b._____
c._____

5. LIST THE THREE MEN ABOARD THIS SHIP (regardless of rank, rate or rating) WITH WHOM YOU MOST ENJOY SPENDING YOUR TIME (such as on liberty, if bull sessions, etc.):

	NAME	DIVISION
a.		
b.		
c.		

(NOTE: ALL ANSWERS TO THIS QUESTIONNAIRE WILL BE TREATED IN COMPLETE CONFIDENCE. NUMBERS WILL BE SUBSTITUTED FOR ALL NAMES APPEARING HEREON. NEITHER THE NAMES OF INDIVIDUALS OR THE NAME OF THIS SHIP WILL APPEAR IN THE RESEARCH REPORT.)

APPENDIX B

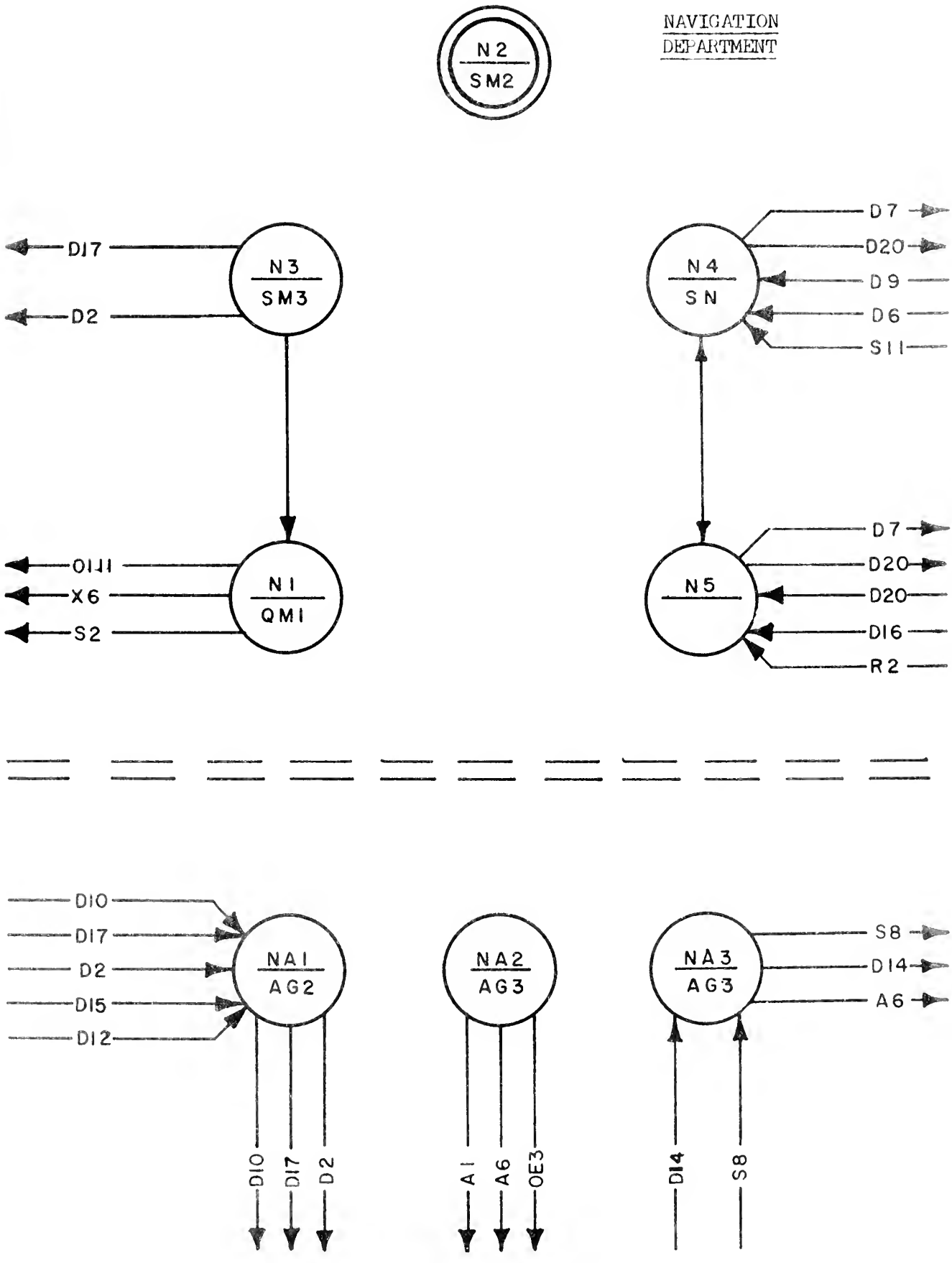
Sociograms

In studying the sociograms the reader may refer to Figure 1 for necessary clarification of abbreviations. The sociograms, however, are believed to be sufficiently marked and cross-labeled to enable easy transition from page to page.

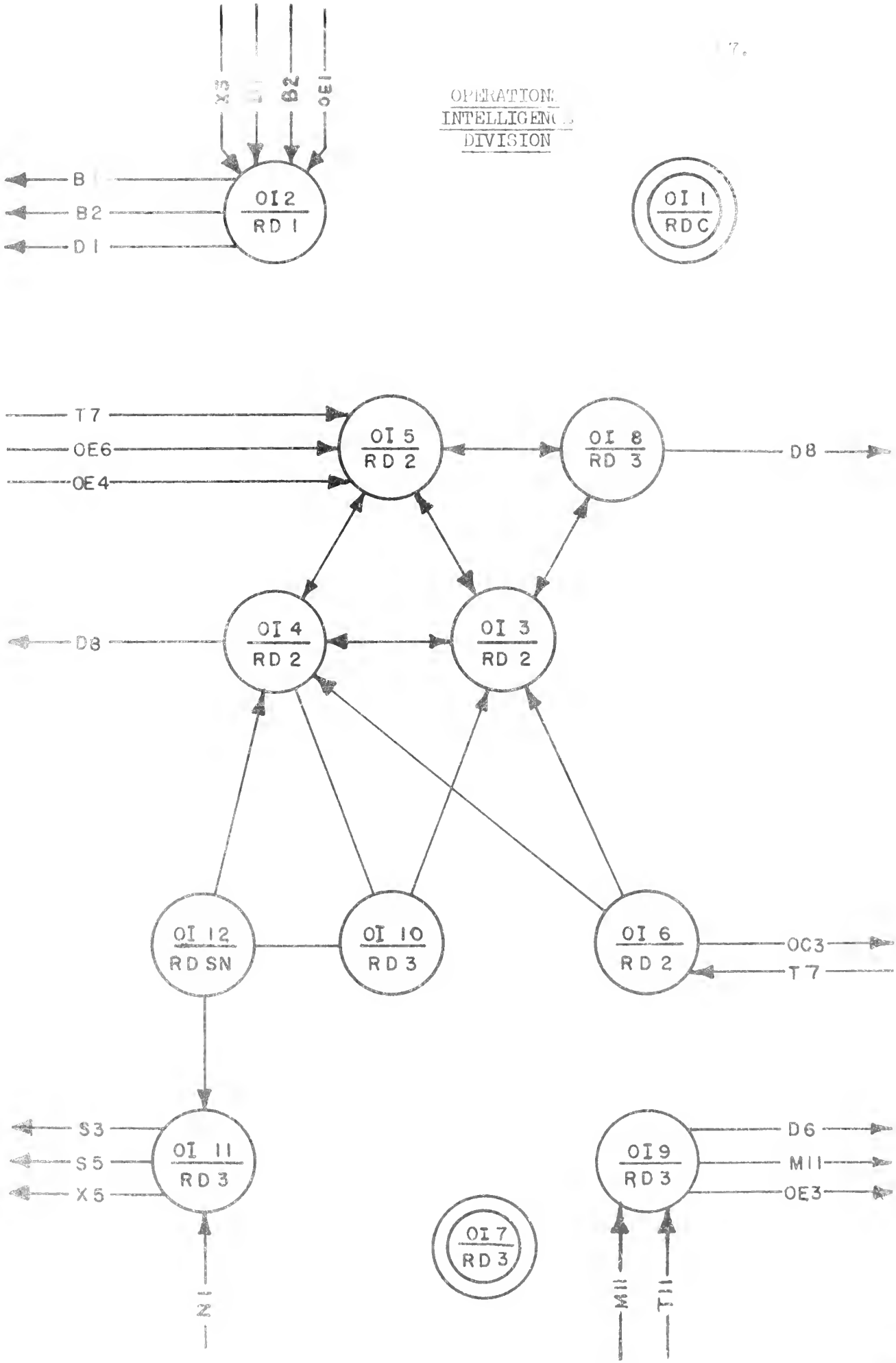
Each sociogram illustrates the social choices of the individuals within one division. Each individual is represented by a circle. Within each circle is given the individual's numerical ranking in the division's formal hierarchy which is preceeded by a letter, or letters, indicating his parent division (for instance: OC1 states that the individual is the first ranking person in the Operations Communications division). Also in each circle, beneath the numerical ranking, is the standard abbreviation for the individual's service rate (for instance: RM3 states that the person is a Radioman Third Class). Choices among personnel within each division are indicated by lines between circles. Arrowheads located at one or both ends of these lines show whether the choice made is one way or mutual. Choices exercized outside the division are shown by a line directed to the edge of the sociogram above which is written the numerical

ranking, with division prefix, of the individual chosen. Choices from outside the division are also shown by lines, in this case traveling from the edge of the sociogram to the chosen individual. On incoming choices, the numerical ranking and division of the person inititating the choice are written above the line. The few individuals who refused to exercise choices are represented by a double circle.

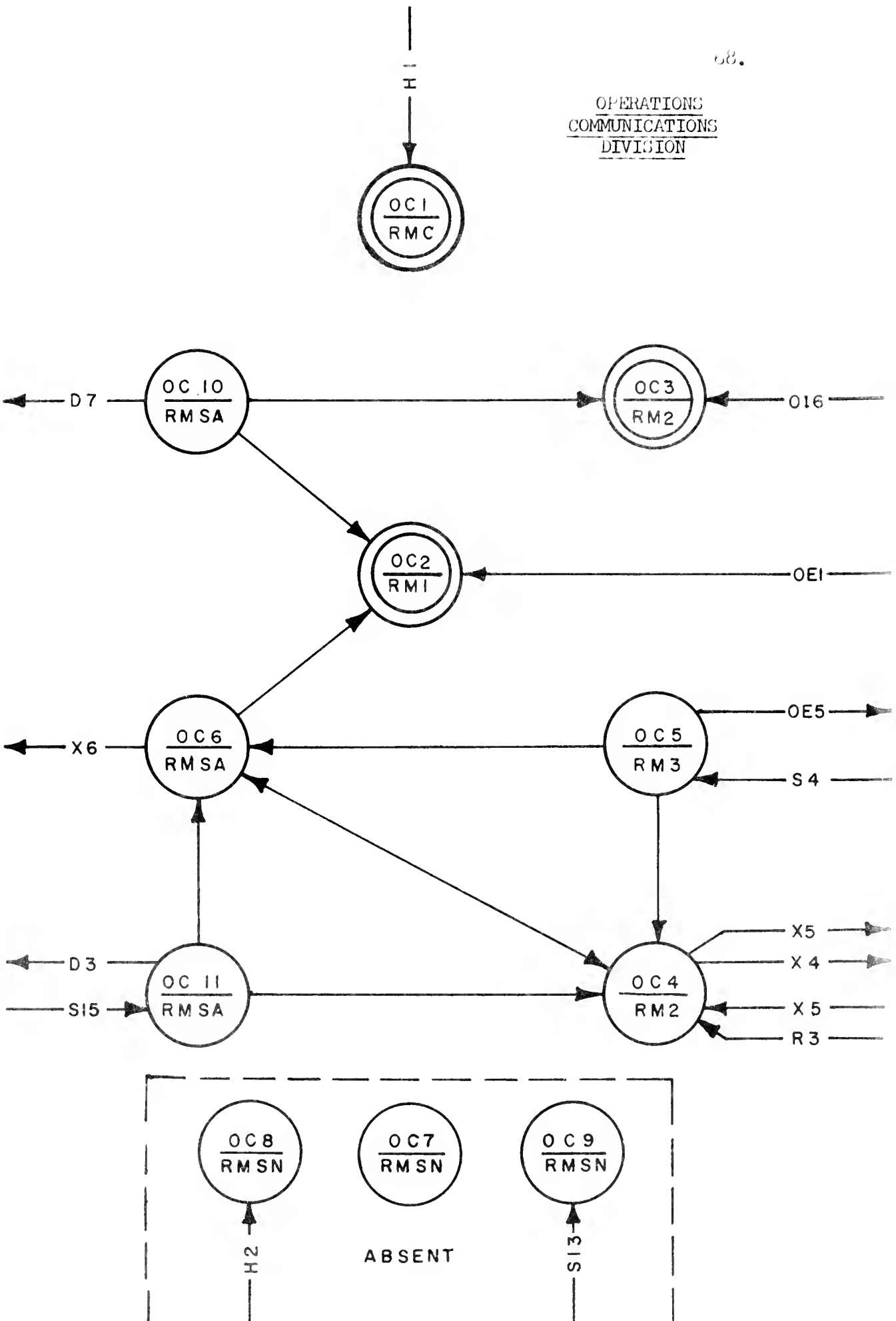
NAVIGATION
DEPARTMENT

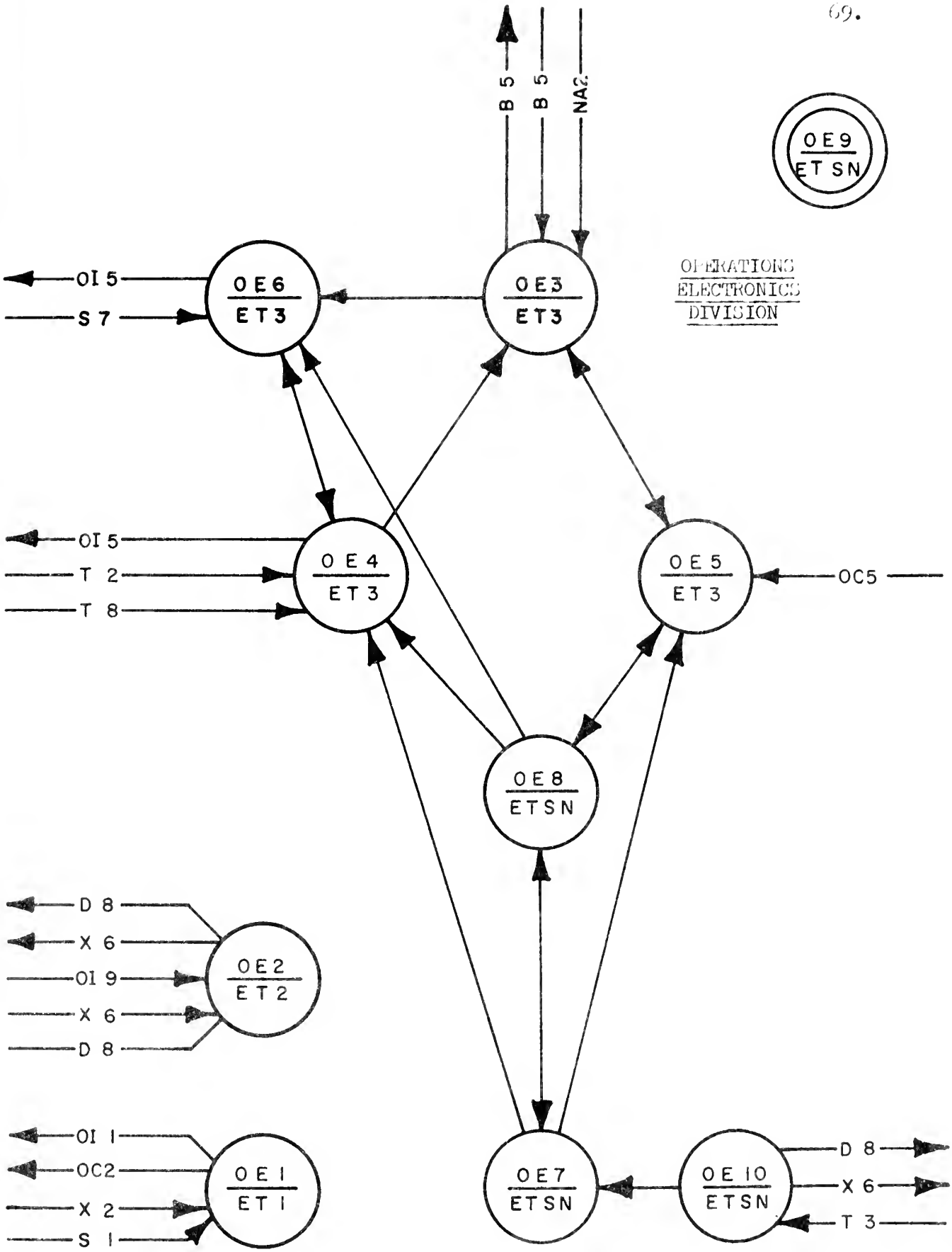


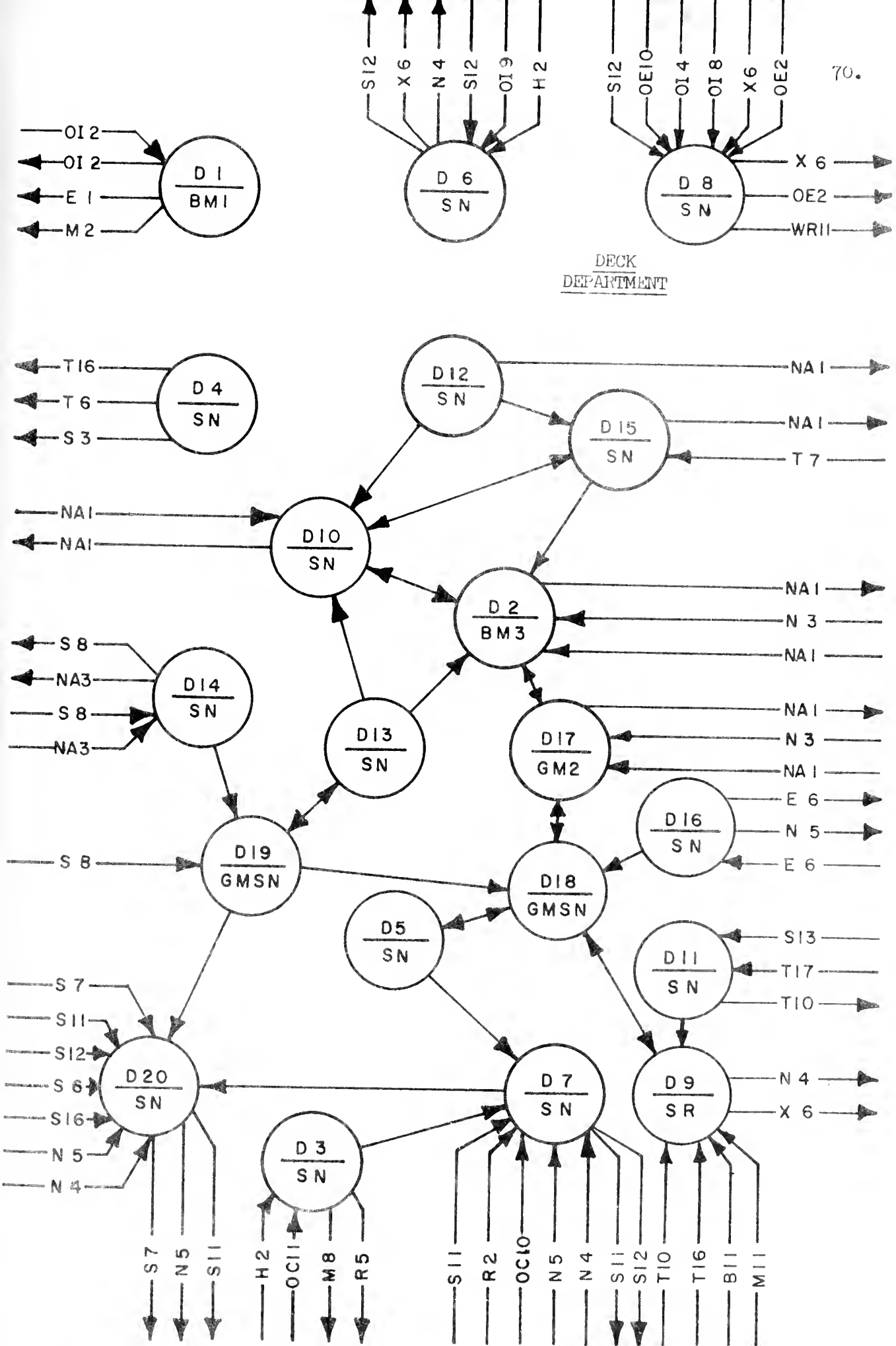
OPERATION
INTELLIGENCE
DIVISION



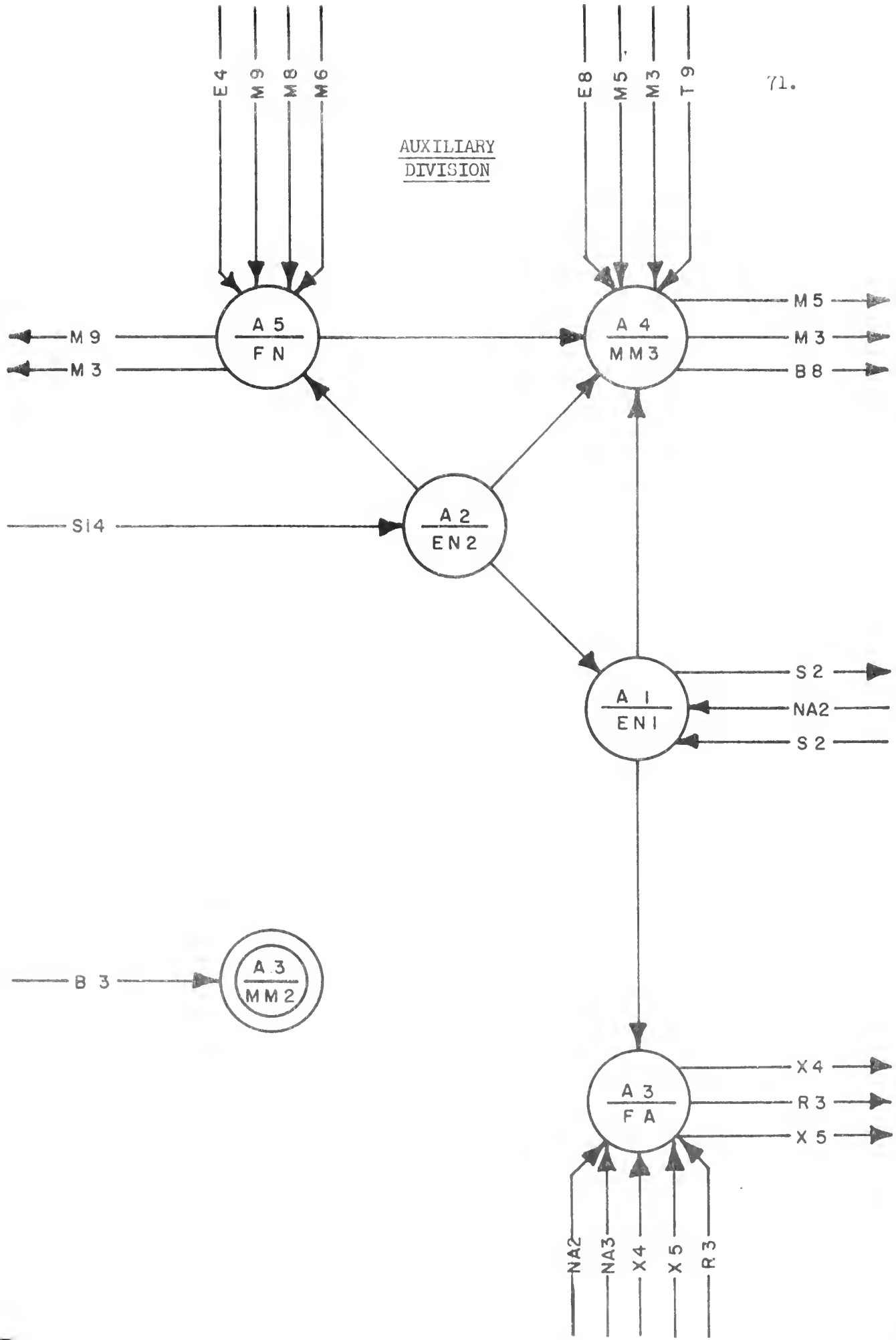
OPERATIONS
COMMUNICATIONS
DIVISION



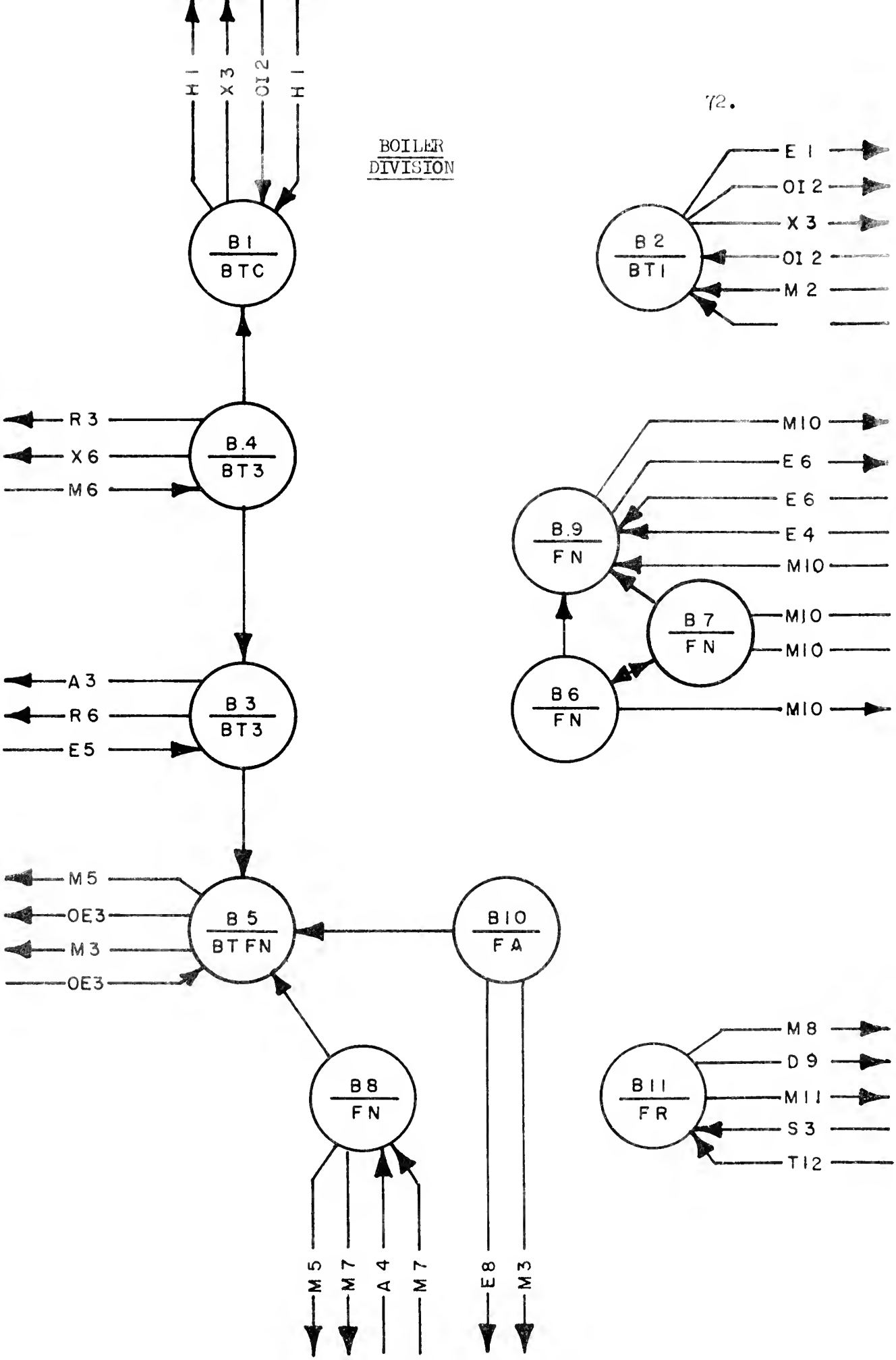

B 5
B 5
NA2
OE9
ETSN
OPERATIONS
ELECTRONICS
DIVISION
OI 5
S 7
OE6
ET3
OE3
ET3
OI 5
T 2
T 8
OE4
ET3
OE5
ET3
OC5
OE8
ETSN
D 8
X 6
OI 9
X 6
D 8
OE2
ET2
OI 1
OC2
X 2
S 1
OE1
ET1
OE7
ETSN
OE10
ETSN
D 8
X 6
T 3


D 1 BMI
OI 2
OI 2
E 1
M 2
D 6 SN
S12
X6
N4
S12
OI9
H2
D 8 SN
S12
OE10
OI4
OI8
X6
OE2
X 6
OE2
WRII
DECK DEPARTMENT
D 4 SN
T16
T 6
S 3
D12 SN
NA I
D 15 SN
NA I
T 7
NA I
NA I
D10 SN
D 2 BM3
NA I
N 3
NA I
S 8
NA3
S 8
NA3
D14 SN
D13 SN
D17 GM2
NA I
N 3
NA I
E 6
N 5
E 6
D16 SN
S 8
D19 GMSN
D18 GMSN
D5 SN
S13
T17
T10
D11 SN
S 7
S11
S12
S 6
S16
N 5
N 4
D20 SN
D7 SN
D9 SR
N 4
X 6
D3 SN
S7
N5
S11
H2
OCII
M8
R5
S11
R2
OC10
N5
N4
S11
S12
TIO
T16
BII
MII

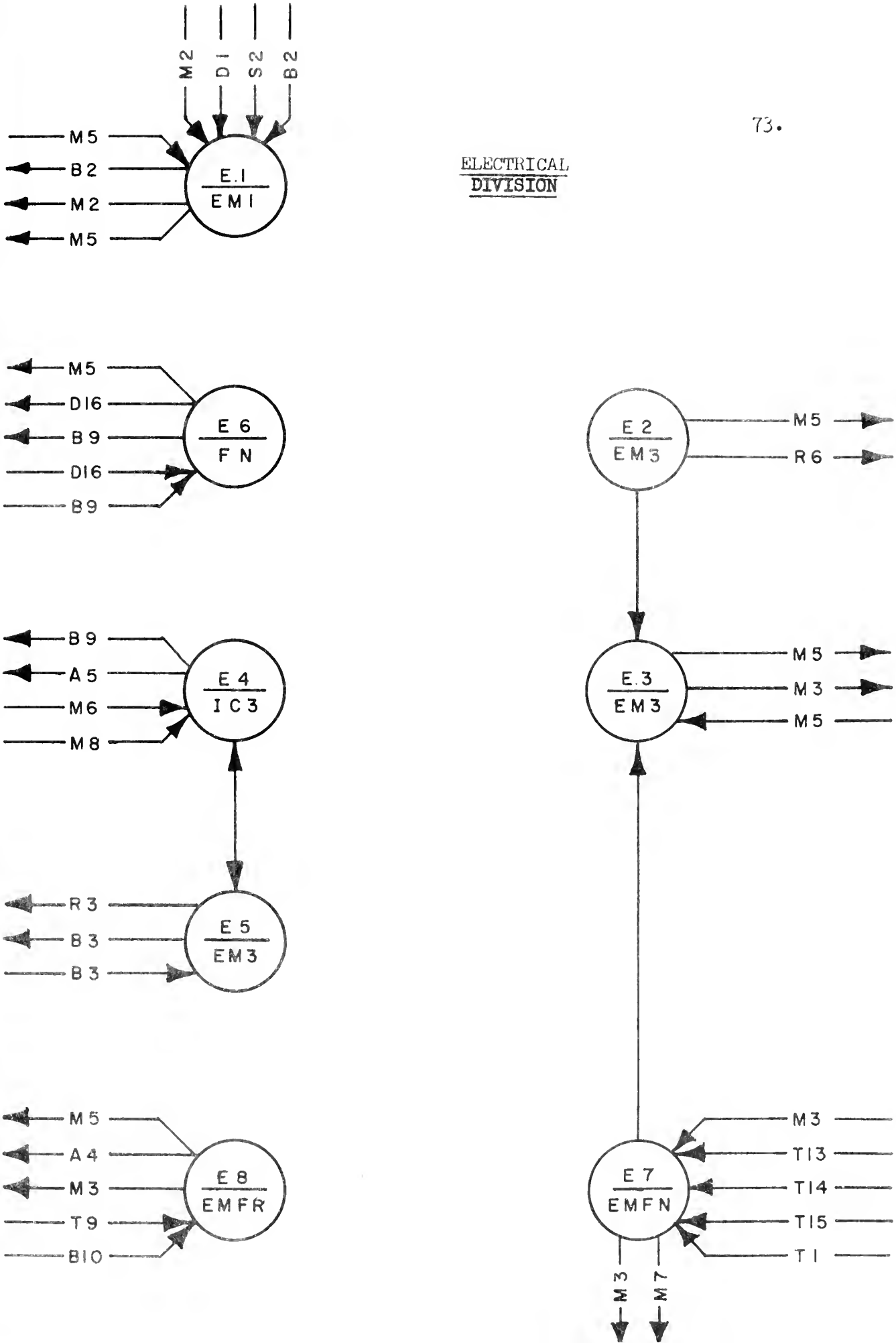
AUXILIARY
DIVISION

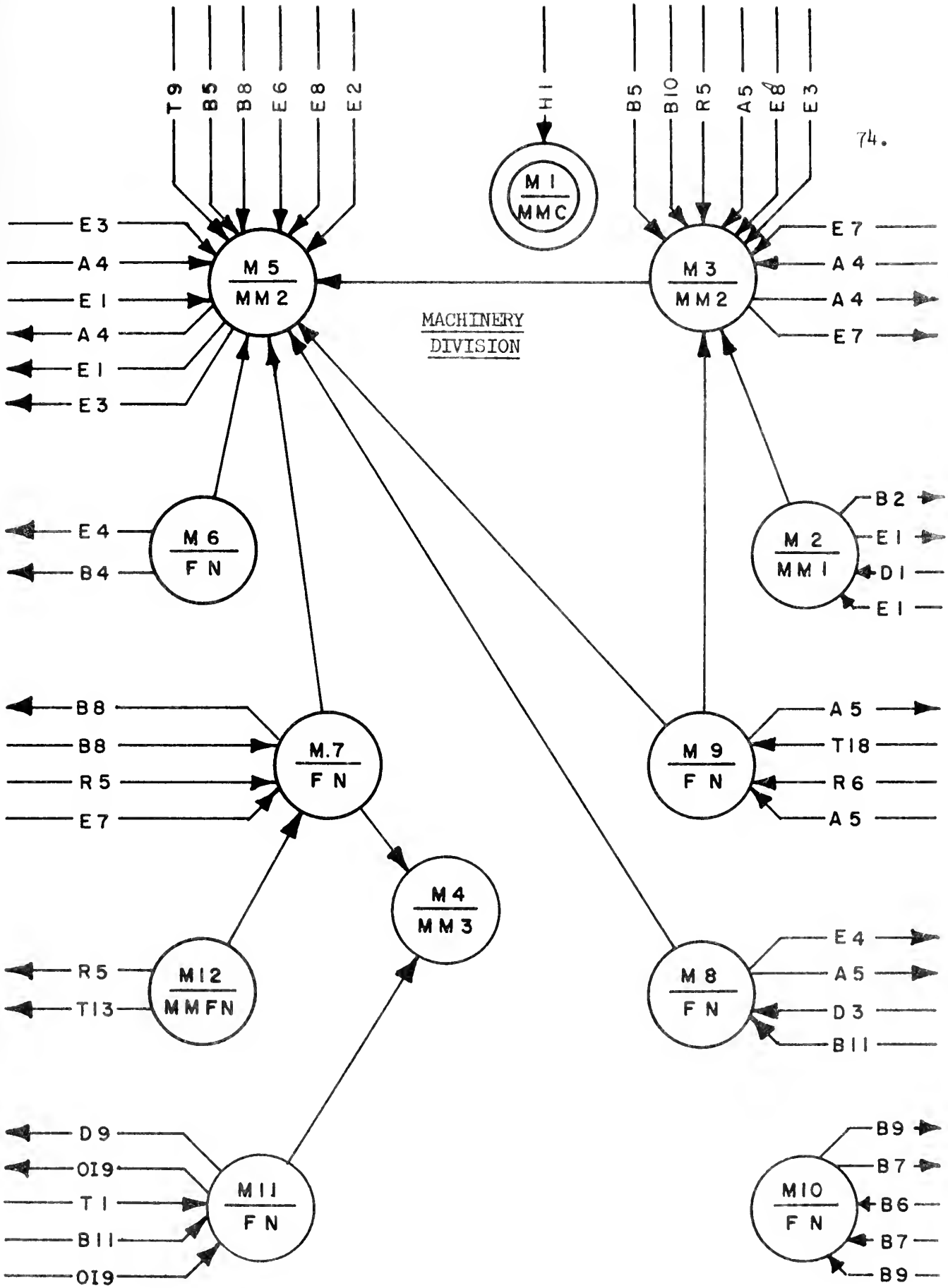


BOILER DIVISION

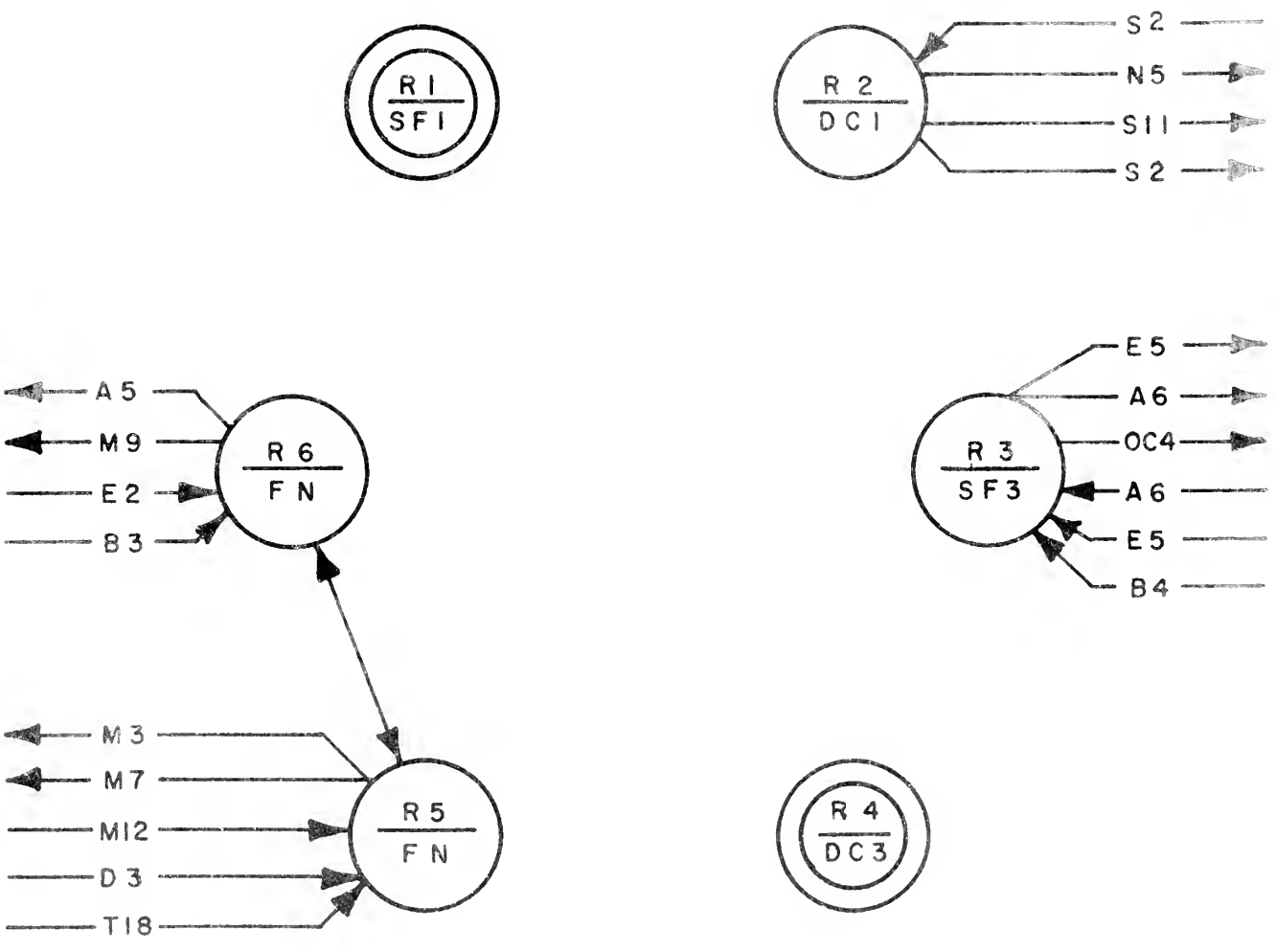


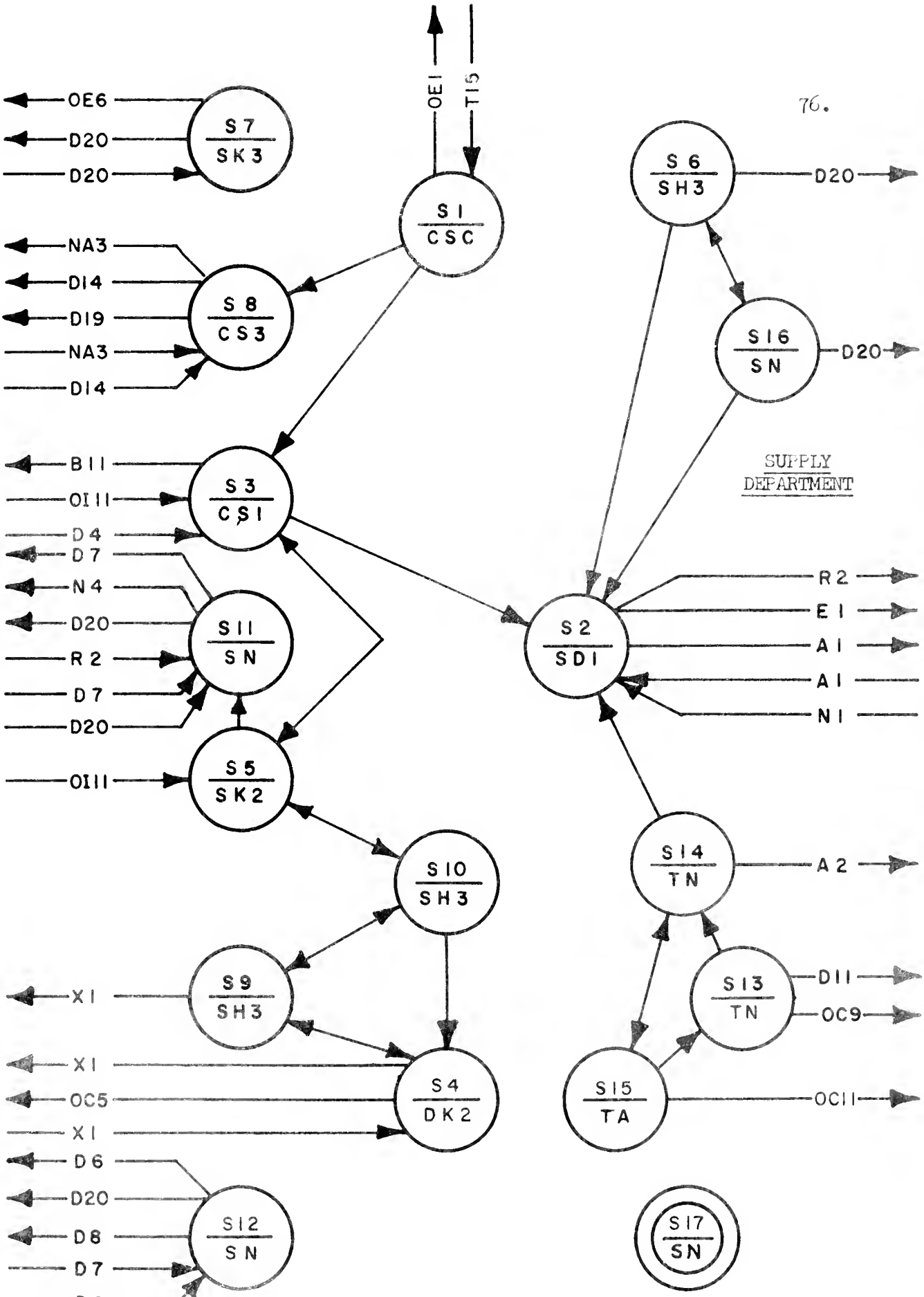
ELECTRICAL
DIVISION




T9
B5
B8
E6
E8
E2
H1
B5
B10
R5
A5
E8
E3
M 1
MMC
E3
A4
E1
A4
E1
E3
M 5
MM 2
MACHINERY
DIVISION
M 3
MM 2
E7
A4
A4
E7
E4
B4
M 6
F N
M 2
MM 1
B2
E1
D1
E1
B8
B8
R5
E7
M.7
F N
M 9
F N
A5
T18
R6
A5
M 4
MM 3
R5
T13
M12
MMFN
M 8
F N
E4
A5
D3
B11
D9
OI9
T1
B11
OI9
M11
F N
M10
F N
B9
B7
B6
B7
B9

REPAIR DIVISION




OE1
T15
S1
CSC
OE6
D20
D20
S7
SK3
NA3
D14
D19
NA3
D14
S8
CS3
S6
SH3
D20
S16
SN
D20
SUPPLY
DEPARTMENT
B11
O111
D4
D7
N4
D20
R2
D7
D20
S3
CS1
S11
SN
R2
E1
A1
A1
N1
S2
SDI
O111
S5
SK2
S10
SH3
S14
TN
A2
X1
S9
SH3
S13
TN
D11
OC9
X1
OC5
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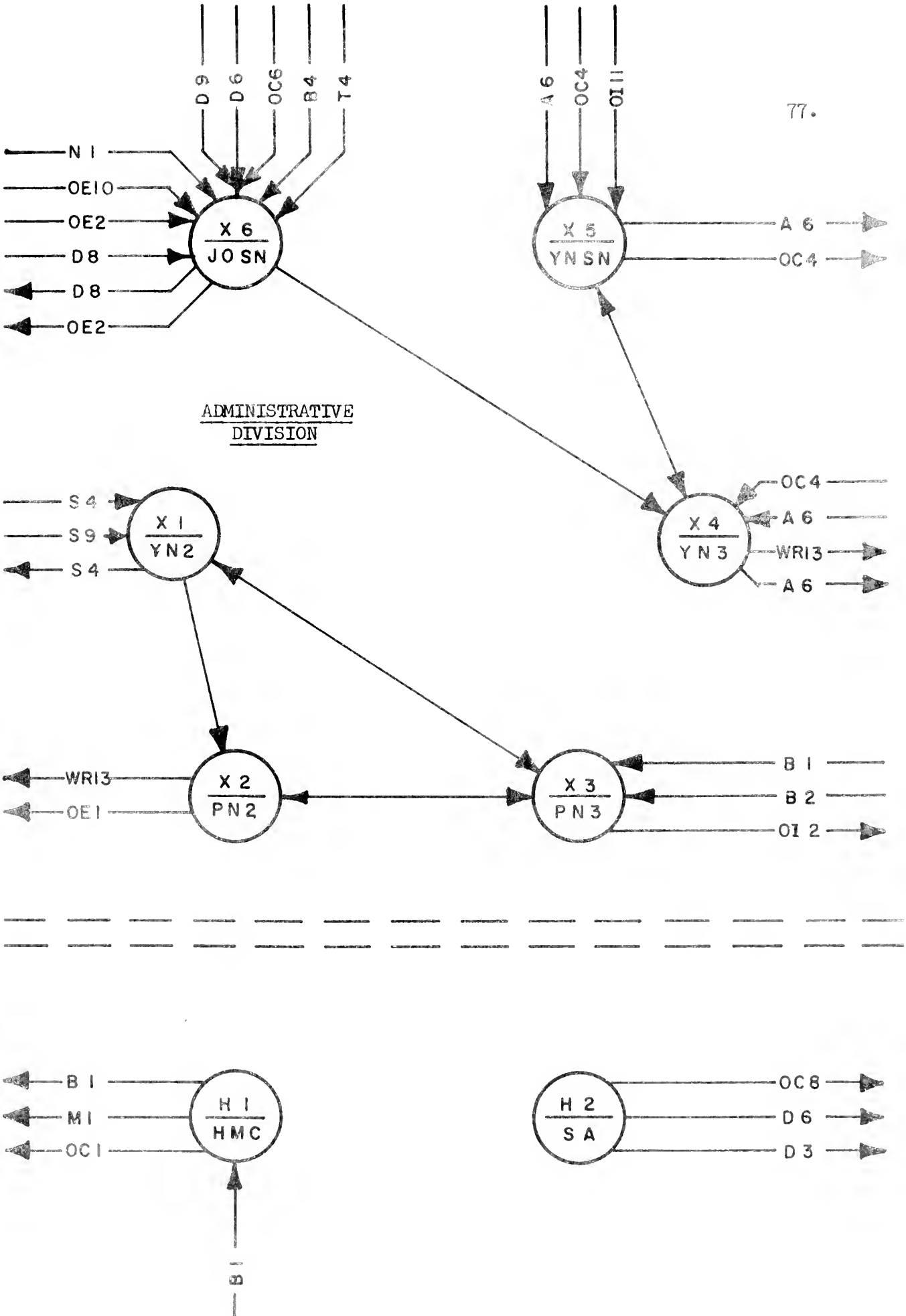
D20
D8
D7
D6
S12
SN
S17
SN


D9
D6
OC6
B4
T4
A6
OC4
OI11
N1
OE10
OE2
D8
D8
OE2
X6
JOSN
X5
YNSN
A6
OC4
ADMINISTRATIVE
DIVISION
S4
S9
S4
X1
YN2
X4
YN3
OC4
A6
WRI3
A6
WRI3
OE1
X2
PN2
X3
PN3
B1
B2
OI2
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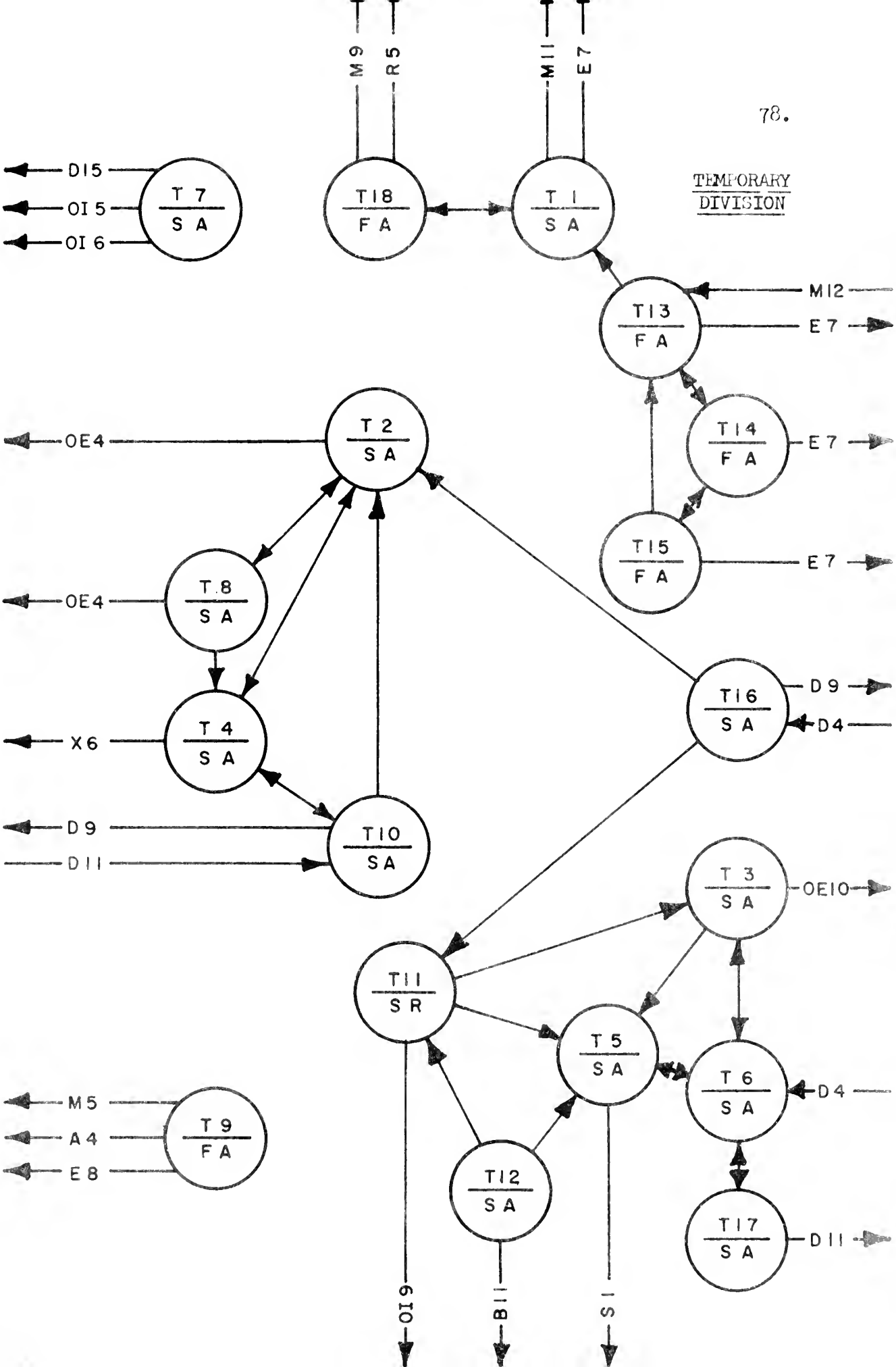
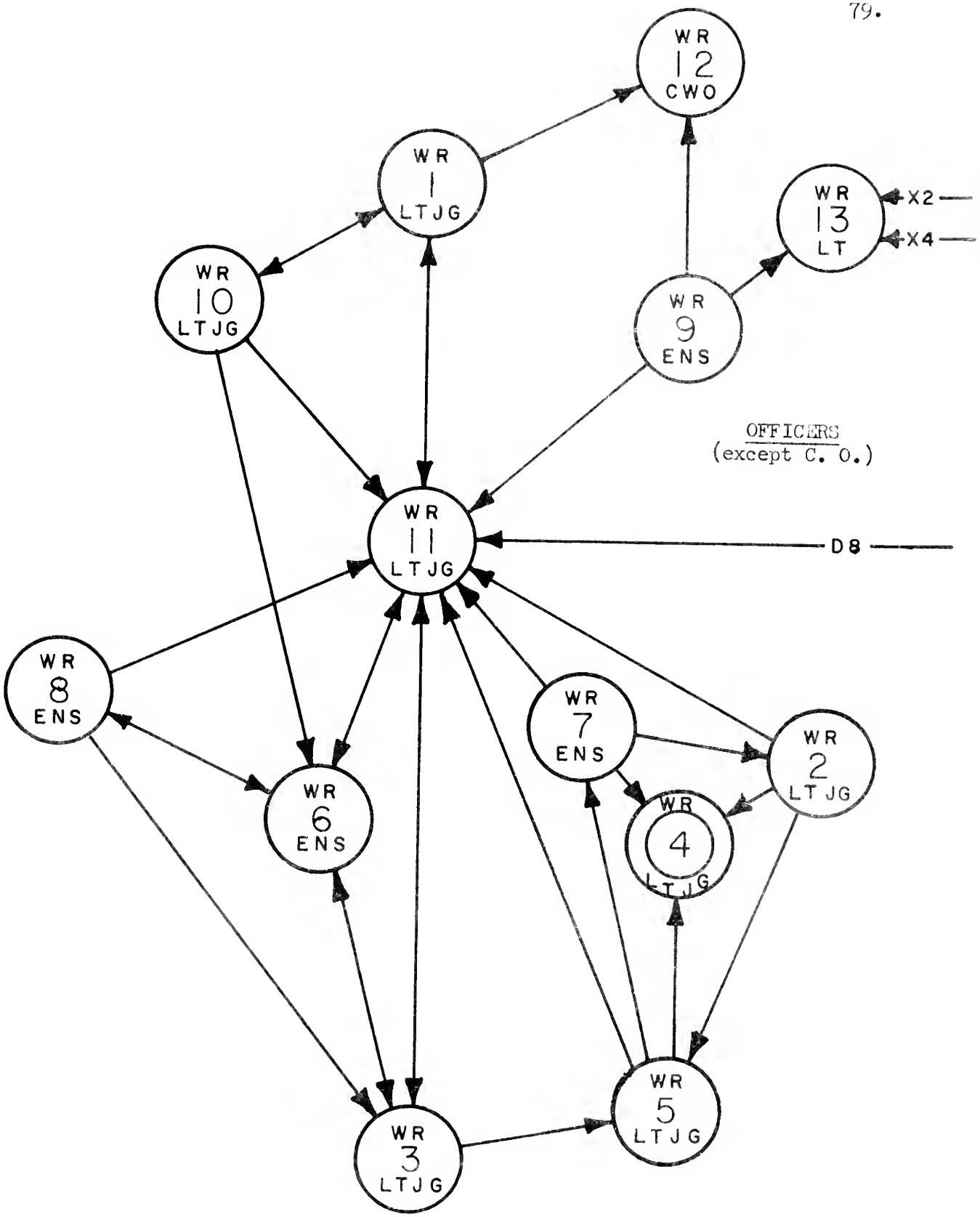
M1
OC1
H1
HMC
B1
H2
SA
OC8
D6
D3

TEMPORARY
DIVISION




WR 12 CWO
WR 1 LTJG
WR 13 LT
X2
X4
WR 10 LTJG
WR 9 ENS
OFFICERS
(except C. O.)
WR 11 LTJG
D8
WR 8 ENS
WR 7 ENS
WR 2 LTJG
WR 6 ENS
WR 4 LTJG
WR 5 LTJG
WR 3 LTJG

APPENDIX C

Rumor Questionnaire

IMPORTANT: THE INFORMATION YOU ENTER ON THIS FORM WILL BE USED SOLELY FOR SCIENTIFIC PURPOSES. ALL ANSWERS WILL BE TREATED IN CONFIDENCE. NUMBERS WILL BE SUBSTITUTED FOR YOUR NAME AND ALL OTHER NAMES ENTERED ON THIS FORM. NEITHER THE NAMES OF INDIVIDUALS NOR THE NAME OF THE SHIP WILL APPEAR IN ANY OTHER MATERIAL ASSOCIATED WITH THIS FORM.

- -

NAME_____

RANK/RATE_____ DIVISION_____

HAVE YOU HEARD OF A POSSIBILITY OF A CHANGE IN THE SHIP'S OVERHAUL (time and/or place of overhaul)?

IF YOU HAVE HEARD OF A POSSIBLE CHANGE IN THE SHIP'S OVERHAUL, WHEN DID YOU FIRST HEAR OF IT?

IF YOU HEARD OF IT SINCE THE SHIP GOT UNDERWAY YESTERDAY, AT WHAT TIME DID YOU FIRST HEAR OF IT?

IF YOU HAVE HEARD OF A POSSIBLE CHANGE IN THE SHIP'S OVERHAUL, FROM WHOM DID YOU FIRST HEAR OF IT?

NAME_____ DIVISION_____

WHAT, AS NEARLY AS YOU CAN RECALL, WERE THE WORDS YOU HEARD FROM THE FIRST PERSON WHO TOLD YOU OF THE POSSIBLE CHANGE?

WITH WHAT SHIPMATES HAVE YOU MOST DISCUSSED THE POSSIBILITY OF A CHANGE IN THE SHIP'S OVERHAUL?

NAME_____ DIVISION_____

NAME_____ DIVISION_____

NAME_____ DIVISION_____

ARE YOU AND THE PERSON(S) LISTED IN THE LAST QUESTION IN AGREEMENT AS TO THE LIKELIHOOD OF A CHANGE IN THE SHIP'S OVERHAUL SCHEDULE?

WHAT IS NOW YOUR PERSONAL OPINION ON THE TIME AND PLACE THE SHIP WILL UNDERGO OVERHAUL?

IF THE SHIP'S OVERHAUL TAKES PLACE AS YOU HAVE INDICATED IN THE LAST QUESTION, HOW WILL YOU FEEL ABOUT IT?

(CHECK ONE)

HAPPY_____

WOULDN'T CARE_____

UNHAPPY_____

BIBLIOGRAPHY

GOVERNMENT PUBLICATIONS

U. S. Navy. United States Navy Regulations. Washington: U. S. Government Printing Office, 1948.

U. S. Navy. Ship's Organization Manual: USS ( ). Aboard USS ( ), 1963. (mimeographed.)

BOOKS

Allport, Gordon W. and Postman, Leo. The Psychology of Rumor. New York: Henry Holt and Co., 1948.

Berelson, Bernard and Steiner, Gary A. Human Behavior. New York: Harcourt, Brace and World, Inc., 1964.

Chadwick, T. The Influence of Rumor on Human Thought and Action. Manchester: Sherratt and Hughes, 1932.

Cutlip, Scott M. and Center, Allen H. Effective Public Relations. Englewood: Prentice-Hall, Inc., 1958.

DeFleur, Melvin L. and Larsen, Otto N. The Flow of Information. New York: Harper and Brothers, 1958.

Hovland, Carl I., Janis, Irving L. and Kelley, Harold H. Communication and Persuasion. New Haven: Yale University Press, 1953.

Jahoda, M., Deutsch, M. and Cook, S. W. Research Methods in Social Relations. New York: The Dryden Press, 1958.

Jennings, Helen. Leadership and Isolation. New York: Long-Mans, Green, 1950.

Katz, Elihu and Lazarsfeld, Paul. Personal Influence: The Played by People in the Flow of Mass Communications. Glencoe: The Free Press, 1955.

Koffka, K. Principles of Gestalt Psychology. New York: Harcourt, Brace and Co., Inc., 1935.

Lindzey, Gardner (ed.). Handbook of Social Psychology. Cambridge: Addison-Wesley Publishing Co., Inc., 1954.

Lundberg, G. A. Social Research: A Study in Methods of Gathering Data. New York: Longmans, Green, 1948.

Moreno, J. L. Who Shall Survive? Beacon: Beacon House, Inc., 1953.

Moreno, J. L. The Sociometry Reader. Glencoe; the Free Press of Glencoe, 1960.

Newstetter, W. I., Feldstein, M. J. and Newcomb, T. M. Group Adjustment: A Study in Experimental Sociology. Cleveland: Western Reserve University, 1938.

Northway, Mary. A Primer of Sociometry. Torento: University of Toronto Press, 1952.

Ponsonby, A. Falsehood in Wartime. New York: E. P. Dutton & Co., 1928.

Rogers, E. M. Diffusion of Innovations. New York: The Free Press of Glencoe, 1962.

Schramm, Wilbur (ed.). Mass Communications. Urbana: University of Illinois Press, 1960.

Schramm, Wilbur (ed.). Responsibility in Mass Communication. New York: Harper and Row, Publishers, 1957.

Schramm, Wilbur (ed.). The Process and Effects of Mass Communication. Urbana: University of Illinois Press, 1955.

Schramm, Wilbur (ed.). The Science of Human Communication. New York: Basic Books, Inc., 1963.

Selltiz, Claire et al. Research Methods in Social Relations. New York: Holt, Rinehart and Winston, Inc., 1962.

Young, Pauline. Scientific Social Surveys and Research. New York: Prentice-Hall, Inc., 1949.

ARTICLES AND PERIODICALS

Allport, F. H. and Lepkin, M. "Wartime Rumors of Waste and Special Privilege: Why Some People Believe Them," Journal of Abnormal and Social Psychology, XL, (1945).

Baier, D. E. "A Review of Leadership Studies with Particular Reference to Military Problems," Psychological Bulletin, VIII, (1945), 466-467

Coleman, J. S., Katz, E. and Menzel, H. "The Diffusion of an Innovation Among Physicians," Sociometry, XX, (1957).

Dodd, S. C. "Formulas for Spreading Opinions," Public Opinion Quarterly, XXII (1958-1959).

French, R. L. "Sociometric Status and Individual Adjustment Among Naval Recruits," Journal of Abnormal Social Psychology, XLVI (1951), 64-72.

Goodacre, D. M. "The Use of a Sociometric Test as a Predictor of Combat Effectiveness," Sociometry, XIV (1951), 148-152.

Gottheil, E. "Sociometric Technique and Experimental Method in Social Psychology," Journal of Social Psychology, XXXV (1952).

Jenkins, J. G. "The Nominating Technique, Its Uses and Limitations," American Journal of Psychology, II (1947).

Jennings, H. "Structure of Leadership -- Development and Sphere of Influence," Sociometry, I (1937), 32-49.

Jennings, H. "Leadership and Sociometric Choice," Sociometry, X (1947), 32-49.

Jennings, H. "Military Use of Sociometric and Situation Tests in Great Britain, France, Germany and the United States," Sociometry, XII (1949), 191-201.

Knapp, R. H., "A Psychology of Rumor," Public Opinion Quarterly, VIII (1944).

Maucorps, P. H. "A Sociometric Inquiry in the French Army," Sociometry, XII (1949), 46-80.

Merton, R. K. "Patterns of Influence: A Study of Interpersonal Influence and Communications Behavior in a Local Community," in Paul Lazarsfeld and Frank Stanton, eds., Communications Research 1948-1949, New York: Harper & Brothers, 1949.

Moreno, J. L. "Sociometry and the Cultural Order," Sociometry, VI (1943), 299-344.

Moreno, J. L. "Sociogram and Sociomatrix," Sociometry, IX (1946), 348-349.

Moreno, J. L. and Jennings, H. "Sociometric Methods of Grouping and Regrouping: With Reference to Authoritative and Democratic Methods of Grouping," Sociometry, VII (1944), 397-414.

Moreno, J. L. and Jennings, H. "Time as a Quantitative Index of Interpersonal Relations," Sociometry, III (1940).

Northway, Mary. "A Method of Depicting Social Relationships," Sociometry, I (1937).

Stogdill, R. M. and Shartle, C. L. "Methods for Determining Patterns of Leadership Behavior in Relation to Organizational Structure and Objectives," Journal of Abnormal and Social Psychology, XXXII (1948).

Smith, G. H. "The Effects of Fact and Rumor Labels," Journal of Abnormal and Social Psychology, XLII (1947).

Wherry, R. J. and Fryer, D. "Buddy Ratings: Popularity Contest or Leadership Criteria?" Sociometry, XII (1949), 179-190.

OTHER SOURCES

_____. Interviews with the commanding officer and other officers and enlisted personnel aboard the test ship.